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Vol. XXV. Part 6.

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The Journal of the Department of Agriculture of Victoria, Australia.

June, 1927.

PRINCIPAL CONTENTS

Burnley Egg Laying Competition, 1926-27

Plant Pathology—Studies in Europe and America

Codling Moth

Standard Herd Test—Quarterly Report

Stock Foods Legislation

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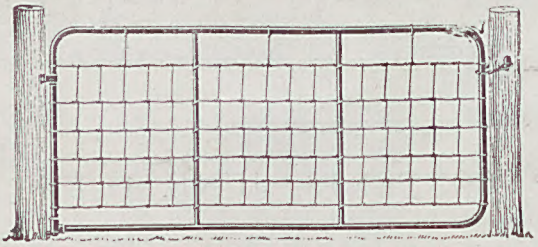

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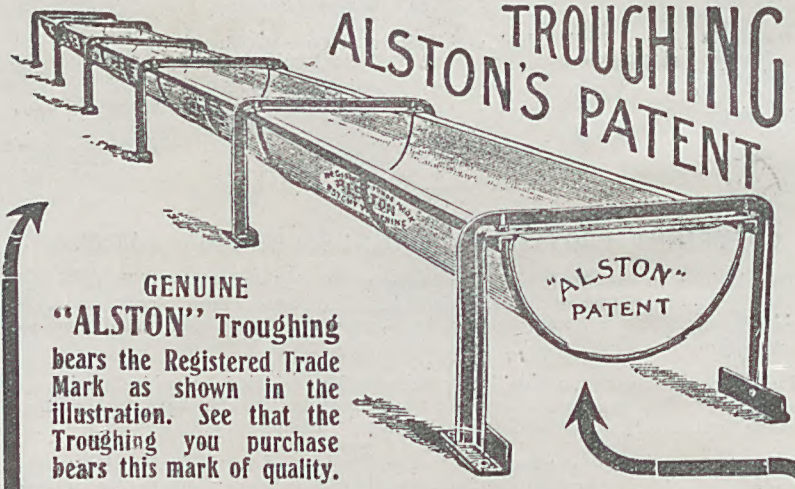

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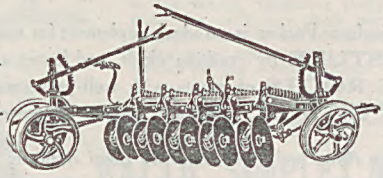

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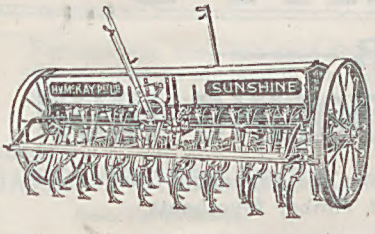

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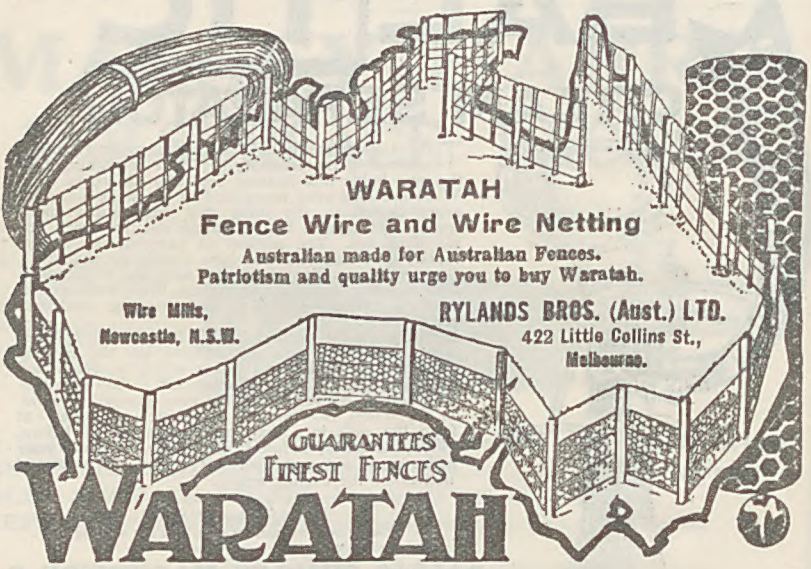

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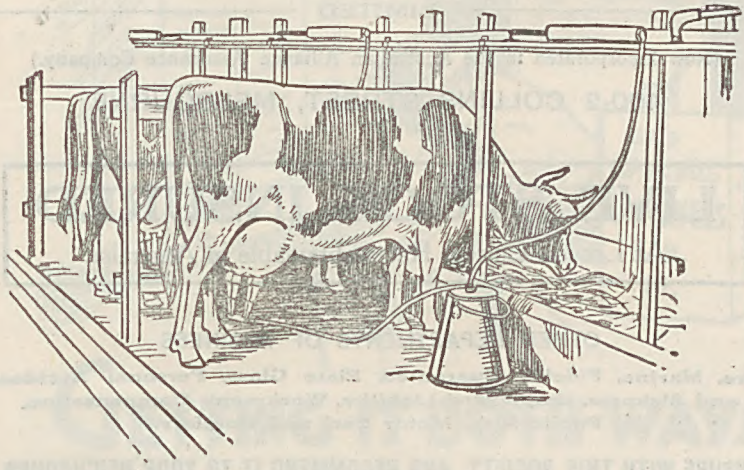

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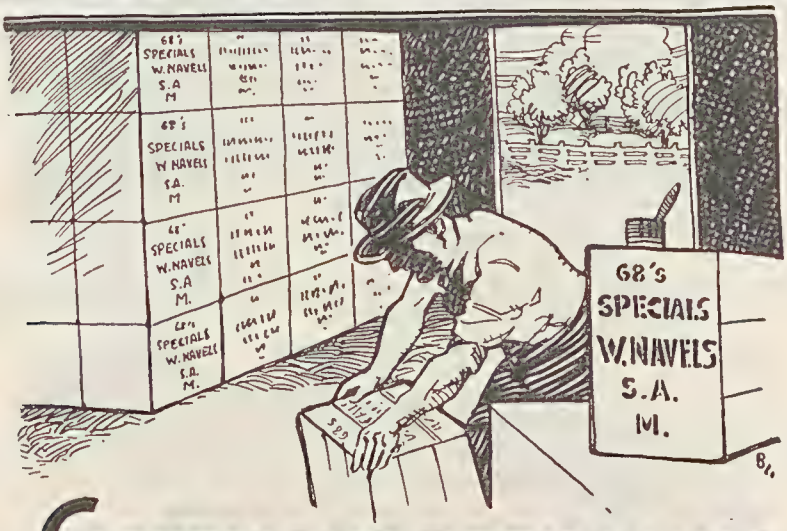

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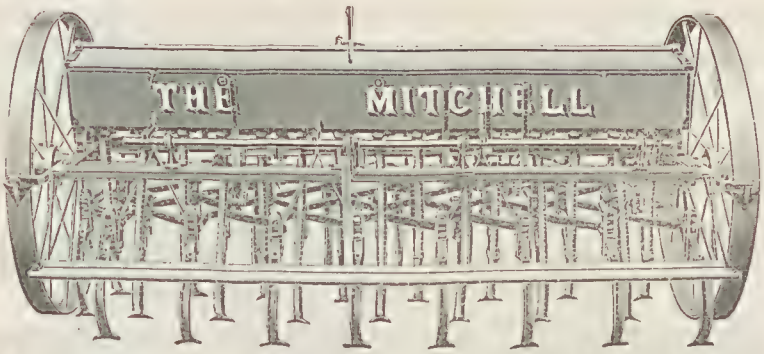

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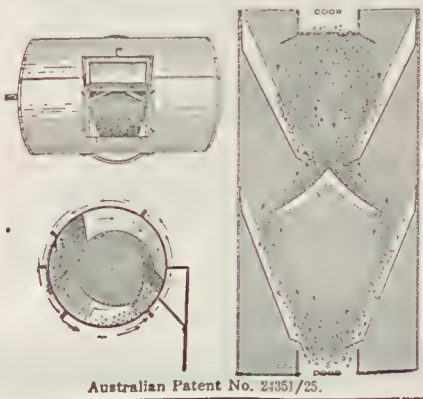

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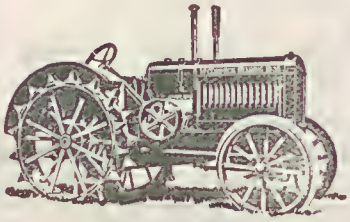

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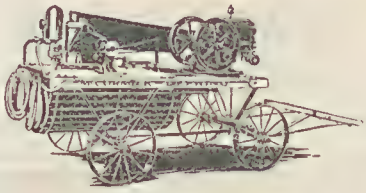
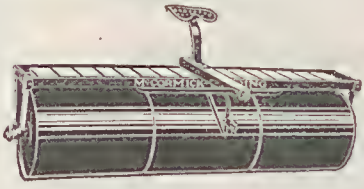


POWER SPRAYERS

The McCormick-Deering Power Sprayer is so practical in design and so sound in construction that it can always be relied upon to give that faithful unceasing service so essential at spraying time.



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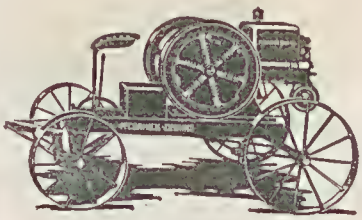

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BURNLEY EGG-LAYING COMPETITION, 1926-7.

SIXTEENTH COMPETITION.

From 1st April, 1926, to 2nd March, 1927 (48 weeks).

By W. C. Rugg, Chief Poultry Expert, and H. F. Clinton, Assistant Poultry Expert.

The Period of the Competition reduced to 48 weeks.

This is the first occasion on which the competition has extended over only 48 weeks instead of 52—in fact, it is the first time that an egg-laying competition in the Commonwealth has been limited to that period.

When this innovation was first suggested there was some opposition, just as a year before there was opposition to the change of system by which the prizes were to be awarded on the value of eggs laid rather than on their number. But that both changes were for the advancement of the poultry industry is now the almost unanimous verdict of breeders.

From the point of view of management, the reduction to 48 weeks is a great improvement. It does away with the rather difficult task of crating and consigning all the birds in the concluding competition, and receiving, uncrating, and penning all the birds for the new competition on the same day. This work always had to be started at daybreak, and on many occasions was only completed at midnight.

It is highly creditable to the staff and assistants that for fifteen years the work was carried out without serious mistake. During that time only once was a pen of birds sent to the wrong address. The mistake was quickly discovered by the then Chief Poultry Expert, the late Mr. Hart, and an officer was sent to recover the birds, and they were delivered at the right address within 48 hours.

The most important advantage in the reduction of the time to 48 weeks is that in the four weeks between the closing of one test and the opening of the other there is ample time to clean and disinfect all the poultry houses and pens.

Full advantage was taken of the interval this year to carry out much needed repairs to some of the buildings. All were thoroughly disinfected inside and out, the yards were limed and cleaned, and all

outside walls painted. It will now be possible to keep the yards and buildings in proper sanitary condition, which should enable future competitors to do even better than those that competed in the past.

Nearly all the leading egg-laying competitions in the world, including that under the National Poultry Council of England, where 1,900 birds are competing this year, have adopted the 48 weeks' period.

Mr. T. A. Mentiplay's White Leghorn.
Winner in Section B, Class 1, White Leghorns, Wet Mash.

During the period of the Competition she laid a total of 311 eggs. During twelve months she laid a total of 334 eggs—the highest record of a White Leghorn in Victoria.

It is probable that at no time in its history has the Burnley Competition proved of greater value to the industry and the State than in the competition just concluded.

Since the rule of weighing every egg laid at the competition was adopted, a marked improvement has taken place in the stamina of the birds competing. Poultrymen now realize that birds must not only lay large numbers of eggs, but that the eggs must be of good size and

weight. A reference to Tables 1 and 2, on pages 348-9, will show that Victorian poultrymen are making rapid strides towards the elimination of the greatest danger to the poultry industry to-day, and that is the small egg.

The owners of the competing birds are to be congratulated on the success achieved in this direction. Table 3 shows the comparative results of the 1925-6 and 1926-7 competitions.

Mr. A. J. Hill's Leghorn Team.
Winners Section A, Class 2, White Leghorns, Dry Mash.
(Total eggs 1,480; value £10 3s. 7d.)

Mr. G. J. White's Black Orpington Team.
Winners Section A, Class 3, Black Orpingtons, Wet Mash.
(Total eggs 1,338; value £9 15s. 7d.)

Although the period of the 1926-7 test was reduced by four weeks, i.e., from 52 to 48 weeks, the average number of eggs laid by all the competing birds was only four eggs per bird less.

The average increase in the grade or size of first-class eggs, i.e., eggs of 2 oz. and over, was 9.5 per cent.; but, what is of far greater importance, there were 13.5 per cent. less second-grade eggs laid in the competition just concluded than in the one preceding. In 1925-6, 544 birds laid 112,240 eggs; in the 1926-7 test, 578 birds laid 116,975 eggs.

It is worthy of notice that in the 1925-6 competition six teams succeeded in winning the certificate awarded to a team that averages 200-first-grade eggs, and that was a 52-weeks' competition. In this 1926-7 competition eleven teams average 200 or over first-grade eggs per bird in the 48 weeks.

Mr. T. A. Mentiplay's Black Orpington.
Winner Section B, Class 4, Black Orpingtons, Wet Mash.
(Total eggs 298; value £1 18s. 10d.)

Three New Official Records.

The outstanding feature of this competition was the remarkable success of Mr. T. A. Mentiplay's birds in Section B for individual birds. Birds bred by him were successful in three classes—Classes Nos. 1 and 2 for White Leghorns, and No. 4, Black Orpingtons. His hen in Class 1 (White Leghorns, Wet Mash) laid 311 eggs in 48 weeks, and, as provided for in rule 1 of the competition, she was retained for the full 52 weeks to give her an opportunity of equalling or beating the existing record, held by Mr. Ryan's Leghorn, which in the dry mash section of the 1923-4 test laid 330 eggs in 52 weeks. Mr. Mentiplay's hen succeeded in laying 334 eggs, and this now stands as the Victorian

official record for a White Leghorn. The performance is all the more creditable because of the fact that she laid only three second-grade eggs in the whole 52 weeks, and those three were laid in the first two weeks of the test.

Mr. F. W. Gough's Brown Leghorn won in Class 3, and, as she laid 216 for the 48 weeks, was retained for the full year, and succeeded in breaking the previous Brown Leghorn record of 222 eggs for twelve months. Mr. Gough's bird laid 236 in the 52 weeks, only two of which were second grade.

In Section A, Class 4 (Anconas), Mr. Farrin Webb's team laid 1,100 eggs up to 2nd March. This team was also retained to give them an opportunity of beating the then existing record for a pen of six Anconas; this they succeeded in doing, laying 1,184 in the 52 weeks.

Mr. R. Farrin Webb's Team of Anconas.
Winners Section A, Class 4, Anconas, Wet Mash.
(Total eggs 1,100; value £6 17s. 5d.)

The Competition.

In Section A, Class 1 (White Leghorns, Wet Mash), Mr. W. Cullen's team took first place; they laid 1,410 eggs, valued at £9 10s. 6d. These birds were of good type and very even.

In Class 2 (White Leghorns, Dry Mash), Mr. A. J. Hill's team was successful; they laid 1,480 eggs. This breeder also owned the team that was third in Class 1.

The team owned by Mr. W. Cook put up a very good performance in laying 1,349 eggs, only seven of which were second grade.

In Class 3 (Black Orpingtons, Wet Mash), Mr. G. J. White secured first place with one of the best teams for type and stamina seen at the Burnley Competition for some time, and, although the total number of eggs laid by them was not as high as that laid at some of the previous competitions, the fact that the team produced only three second-grade eggs out of a total of 1,338 must be considered highly satisfactory.

Though Mr. W. Cullen's team laid a total of 1,466—by far the highest number laid by any team in the class—it was entitled to only second place, for unfortunately one member of the team laid a number of small eggs.

In Classes 4 and 5 (Anconas and Black Minorcas), there was only one team in each.

In Classes 6, 7, and 8, no entries were received.

In Class 9 there were six teams of Rhode Island Reds entered, but only one team laid the number of eggs required by the rule (i.e., 1,000 eggs) to entitle them to a certificate.

It is the intention of the Department to delete the classes for these breeds until breeders can guarantee a sufficient number of entries in each class to make it worth while providing separate classes for them.

Mr. T. A. Mentiplay's White Leghorn.
Winner Section B, Class 2, White Leghorns, Dry Mash.
(Total eggs 277; value £1 19s.)

There are still, however, two classes in which these breeds, unpopular for the moment, can be entered. Those that are suitable can compete in the class for all Light Breeds, other than White Leghorns, while the others may be entered in the class for Heavy Breeds other than Black Orpingtons.

The Financial Side.

The number of birds that started in the competition was 588, but 23 of them died. The total number of days these latter birds collectively were in the pens was 4,585, which is equal, approximately, to thirteen

birds having been there for the 48 weeks. Therefore, the total number of birds in the competition for the whole period may be regarded as 578, and this is the figure that has been used when working out averages, &c.

The total number of eggs laid during the competition was 116,975—an average of 202.3 eggs per bird.

The price realized for eggs averaged 1s. 6½d. per dozen. The return from sales averaged £1 6s. per bird, and the cost of food averaged 12s. 8d. per bird—a fraction over 3d. per week; thus the profit over cost of food for the 48 weeks averaged 13s. 4d. per bird.

A list of the different kinds and quantities of the food fed to the birds during the currency of the competition is given hereunder:—

Wheat, 24,587 lb.; oats, 1,898 lb.; maize, 2,214 lb.; bran, 17,181 lb.; wheat pollard, 20,043 lb.; oat pollard 1,000 lb.; rice pollard 175 lb.; meat 3,552 lb.; meatmeal, 164 lb.; onions, 182 lb.; grit, 2 tons; charcoal, 8 bags.

Mr. W. Cullen's White Leghorn Team.
Winners Section A, Class 1, Leghorns, Wet Mash.
(Total eggs 1,410; value £9 10s. 6d.)

Conclusion.

Great credit is due to Mr. Macauley and his assistants for the fine condition in which the birds finished, and also for the excellent record obtained in trapnesting. Out of a total of 116,975 eggs laid, only 140 were laid outside the traps, which means that only .119 per cent. of the eggs could not be traced to the individual hens that laid them. Probably, better results have never been obtained at any competition in the world.

Mr. H. Baker had charge of all calculations of values of eggs, and his promptness in issuing the weekly reports to the press, and his unfailing courtesy in supply detailed information, has been very much appreciated by the competitors and ourselves. We are also indebted to him for the compilation of Tables 1, 2, and 3.

DETAILS OF FINAL RESULTS.

For the purpose of valuation, eggs were divided into first grade valued at market price, and second grade valued at market price less 25 per cent. During the first two months of the competition, a first grade egg must have weighed not less than $1\frac{3}{4}$ oz., and thereafter not less than 2 oz.; during this period the minimum weight of a second grade egg was $\frac{1}{4}$ oz. less. No value was given for underweight eggs.

(x) Denotes eggs laid outside of nest. (*d*) Denotes death of bird.

As some competitors may not have kept a note of the colour of the identification rings they are repeated here:—No. 1, a red ring; No. 2, white; No. 3, green; No. 4, yellow; No. 5, white with a blue spiral band; and No. 6, white with a black spiral band.

Section A.—Groups of Six Birds—Trapnested.

Class 1.—Leghorns, Wet Mash (White Leghorns).

Pen No	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value. £	s.	d.
6	1st Prize, Champion Certificate— W. Cullen, Werribee Poultry Farm, Werribee	1	185	150	35	1	1	2	9·69
		2	243	206	37	..	1	14	0·27
		3	267	255	12	..	1	17	7·72
		4	235	212	23	1	1	11	4·82
		5	219	202	17	1	1	8	7·35
		6	261	247	14	..	1	16	0 90
		x	..	..	..	..		..	
		..	1,410	1,272	138	3	9	10	6·75
8	2nd Prize, Government Certificate— J. J. West, 248 McKean-street, North Fitzroy	1	225	208	17	2	1	9	11·67
		2	230	163	67	3	1	9	10·93
		3	264	244	20	..	1	17	3·34
		4	216	181	35	..	1	8	11·28
		5	180	160	20	..	1	6	2·47
		6	187	184	3	..	1	6	9·97
		x	2	2	..	..	0	0	3·5
		..	1,304	1,142	162	5	8	19	5·16
7	3rd Prize, Government Certificate— A. J. Hill, "Sunraysia" Poultry Farm, Greensborough	1	267	235	32	1	1	16	5·04
		2	172	126	46	..	1	0	2·07
		3	233	216	17	2	1	12	3·31
		4	194	193	1	1	1	5	1·14
		5	203	103	100	12	1	5	7·38
		6	223	208	15	..	1	10	1·41
		x	1	..	1	..	0	0	1·31
		..	1,293	1,081	212	16	8	9	9·66
2	W. E. C. O'Neill, "Bonnie View," Brassey-avenue, Rosanna	1	233	160	73	2	1	9	8·6
		2	212	103	109	7	1	4	11·9
		3	271	215	56	1	1	16	4·77
		4	222	204	18	1	1	8	8·05
		5	197	168	29	..	1	3	8·6
		6	174	150	24	1	1	1	1·27
		x	..	..	..	..		..	
		..	1,309	1,000	309	12	8	4	7·19

Section A—*continued.*

Class 1.—Leghorns, Wet Mash (White Leghorns)—*continued.*

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value. £ s. d.
12	A. Poole, "Iona," via Bunyip	(*d*) 1	226	211	15	2	1 10 4·73
		2	213	202	11	3	1 7 7·54
		3	236	230	6	3	1 12 11·32
		4	206	193	13	1	1 6 2·63
		5	206	202	4	2	1 6 11·65
		6	135	130	5	5	0 16 3·25
		x	..	..	..	..	..
		..	1,222	1,168	54	16	8 0 5·12
5	Mr. H. Schmutter, Bunyip ..	1	195	176	19	..	1 4 7·12
		2	187	149	38	..	1 3 10·65
		3	210	167	43	4	1 8 1·35
		4	188	178	10	..	1 4 2·59
		5	217	151	66	..	1 5 11·13
		6	213	116	97	2	1 6 2·13
		x	1	1	..	..	0 0 1·75
		..	1,211	938	273	6	7 13 0·72
20	W. E. Ford, c/o "Rosette" Poultry Farm, Lower Ferntree Gully	1	174	165	9	1	1 2 5·28
		2	219	219	..	..	1 10 3·4
		3	200	197	3	..	1 7 5·65
		4	198	198	..	1	1 6 4·05
		5	195	193	2	..	1 6 8·74
		6	150	150	..	..	0 19 9·16
		x	..	..	..	..	..
		..	1,136	1,122	14	2	7 13 0·28
15	J. B. Nicoll, Lake-street, Reservoir	1	224	193	31	2	1 7 10·57
		2	188	163	25	2	1 5 3·99
		(*d*) 3	108	76	32	..	0 16 6·86
		4	190	179	11	2	1 3 6·06
		5	235	215	20	1	1 11 6·48
		6	178	164	14	..	1 2 5·7
		x	1	1	..	..	0 0 2
		..	1,124	991	133	7	7 7 5·66
3	S. E. Dickins, 59 King-street, Geelong West	1	208	117	91	8	1 4 5·04
		2	218	205	13	..	1 9 8·57
		3	201	176	25	..	1 4 4·92
		4	198	170	28	1	1 4 2·28
		5	207	145	62	..	1 5 10·13
		6	143	130	13	..	0 16 10·53
		x	2	1	1	..	0 0 3·06
		..	1,177	944	233	9	7 5 8·53

Section A—*continued.*

Class 1.—Leghorns, Wet Mash (White Leghorns)—*continued.*

No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value. £ s. d.
17	Gedye Bros., Railway-road, Blackburn	1	197	163	34	1	1 4 4·32
		2	148	116	32	..	0 17 9·86
		3	210	197	13	1	1 9 1·05
		4	205	186	19	1	1 6 1·41
		5	197	142	55	8	1 3 11·47
		6	177	173	4	..	1 4 0·01
		x	..	..	..	..	..
		..	1,134	977	157	11	7 5 4.12
18	J. Wear, "Nonpariel" Poultry Farm, Werribee	1	190	135	55	13	1 3 8·64
		2	192	154	38	4	1 5 2·88
		3	224	166	58	12	1 9 9·84
		4	216	176	40	8	1 8 4·53
		5	165	134	31	1	1 1 5·45
		6	121	80	41	9	0 13 11.13
		x	..	..	..	2	..
		..	1,108	845	263	49	7 2 6·47
4	L. F. Bush, Westall-road, Springvale	1	121	20	101	99	0 13 3·97
		2	184	128	56	17	1 4 6·1
		3	261	190	71	..	1 13 9·95
		4	242	227	15	1	1 12 11·55
		5	195	119	76	4	1 2 6·62
		6	125	121	4	9	0 14 8·31
		x	1	1	..	..	0 0 1.75
		..	1,129	806	323	130	7 2 0·25
9	G. Pocknall, 112 Dundas-street, Thornbury	1	188	95	93	24	1 1 9·6
		2	207	130	77	18	1 6 1·93
		3	211	123	88	11	1 6 0·61
		4	154	83	71	33	0 17 7·57
		5	190	123	67	11	1 2 8·75
		6	171	120	51	10	1 0 8·15
		x	1	..	1	..	0 0 1·5
		..	1,122	674	448	107	6 15 2.11
14	H. Shaw, 15 Mayfield-street, East St. Kilda	1	171	143	28	1	1 0 11·22
		2	127	103	24	..	0 16 0·87
		3	174	161	13	..	1 2 4·66
		4	213	141	72	4	1 7 1·55
		5	124	124	..	..	14 0 0·99
		6	233	231	2	..	1 12 11·30
		x	1	1	..	..	0 0 2·0
		..	1,043	904	139	5	6 13 8·59

Section A—*continued.*

Class 1.—Leghorns, Wet Mash (White Leghorns)—*continued.*

Pen No	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
							£ s. d.
13	F. Wight, Canterbury-road, Bayswater	1	178	150	28	1	1 2 4·36
		2	198	131	67	6	1 3 11·89
		3	204	181	23	1	1 7 9·57
		4	203	101	102	6	1 4 11·64
		5	146	98	48	3	0 17 9·06
		6	140	113	27	..	0 16 3·14
		x	..	..	..	2	..
		..	1,069	774	295	19	6 13 1·66
21	Tom McMurrick, 76 Garden-street, East Geelong	1	43	20	23	60	0 6 3·62
		2	235	182	53	69	1 10 9·26
		3	211	106	105	40	1 5 8·34
		4	245	151	94	1	1 9 6·13
		5	134	79	55	4	0 16 4·74
		6	182	134	48	..	1 3 4·06
		x	2	2	..	..	0 0 4·5
		..	1,052	674	378	174	6 12 4·65
22	A. Nagel, 15 Osborne-street, Williamstown	(*d*) 1	119	110	9	..	0 14 2·43
		2	68	57	11	..	0 8 8·94
		3	192	172	20	1	1 5 10·86
		4	188	151	37	1	1 4 7·25
		5	207	141	66	1	1 4 9·42
		6	186	149	37	..	1 4 5·38
		x	2	1	1	2	0 0 3·25
		..	962	781	181	5	6 2 11·53
11	D. Gibson, 126 Dundas-street, Thornbury	1	170	138	32	12	1 1 2·43
		2	112	82	30	3	0 12 11·56
		3	140	89	51	4	0 16 3·18
		4	152	143	9	2	1 0 5·77
		5	196	172	24	2	1 4 11·95
		6	186	118	68	16	1 5 1·65
		x	..	..	..	1	..
		..	956	742	214	40	6 1 0·54
19	E. C. Hawkins, "Woolamia," Tocumwal, New South Wales	1	170	157	13	..	1 0 1·21
		2	168	141	27	1	1 2 3·82
		3	137	135	2	1	0 16 4·93
		4	212	178	34	..	1 7 10·79
		5	152	127	25	2	1 0 7·5
		6	46	43	3	..	0 5 6·13
		x	1	1	..	..	0 0 1·5
		..	886	782	104	4	5 12 11.88

Section A—*continued.*

Class 1.—Leghorns, Wet Mash (White Leghorns)—*continued.*

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
							£ s. d.
10	H. C. Clark, 28 Faversham-road, Canterbury	1	146	75	71	13	0 17 4·43
		2	216	167	49	4	1 9 2·71
		3	188	158	30	4	1 3 11·56
		4	110	62	48	4	0 12 0·21
		5	124	87	37	3	0 15 10·58
		(*d*) 6	68	60	8	..	0 8 3·78
		x	4	2	2	..	0 0 6·12
		..	856	611	245	28	5 7 3·39
16	R. R. Christie, "St. Elmo," Bentleigh	1	179	165	14	4	1 2 9·96
		2	78	66	12	11	0 9 11·76
		3	152	66	86	21	0 17 4·19
		4	188	153	35	1	1 4 2·24
		5	131	88	43	7	0 14 0·28
		6	112	104	8	3	0 12 9·10
		x	1	1	..	..	0 0 1·33
		..	841	643	198	47	5 1 2·86
23	M. G. Leech, "Trevallyn" Poultry Farm, Sydney-road, Campbellfield	1	161	158	3	..	1 1 10·53
		(*d*) 2	42	40	2	..	0 5 9·03
		3	117	78	39	6	0 12 8·79
		4	188	179	9	..	1 7 3·48
		(*d*) 5	93	93	..	..	0 11 2·81
		6	152	152	..	..	0 18 9·83
		x	1	1	..	..	1·25
		..	754	701	53	6	4 17 9·72
1	T. J. Culhane, Elizabeth-street, Coburg	1	159	31	128	8	0 15 0·13
		2	166	68	98	3	0 18 0·34
		3	201	185	16	1	1 4 11·98
		4	144	54	90	6	0 15 1·39
		(*d*) 5	33	11	22	2	0 3 7·77
		6	140	12	128	21	0 12 11·40
		x	1	..	1	3	0 0 1·50
		..	844	361	483	44	4 9 10·51

Class 2.—Leghorns, Dry Mash (White Leghorns).

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
							£ s. d.
30	1st Prize, Champion Certificate— A. J. Hill, "Sunraysia" Poultry Farm, Greensborough	1	246	223	23	..	1 12 8·86
		2	256	242	14	..	1 16 5·74
		3	242	214	28	2	1 13 0·33
		4	245	225	20	..	1 13 5·81
		5	244	232	12	..	1 14 2·71
		6	247	222	25	..	1 13 7·82
		x	..	..	..	..	..
		..	1,480	1,358	122	2	10 3 7·27

Section A—*continued.*

Class 2.—Leghorns, Dry Mash (White Leghorns)—*continued.*

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
							£ s. d.
36	2nd Prize, Government Certificate— N. Burston, 284 Glenferrie-road, Glenferrie	1	248	236	12	..	1 13 7·10
		2	238	235	3	..	1 11 2·28
		3	169	157	12	..	1 1 3·18
		4	264	261	3	..	1 16 7·76
		5	234	228	6	..	1 11 6·67
		6	234	226	8	1	1 10 9·52
		x	..	..	..	..	..
		..	1,387	1,343	44	1	9 5 0·51
33	3rd Prize, Government Certificate— E. & D. O'Mullane, 24 Medley-street, South Yarra	1	225	212	13	..	1 9 11·51
		2	255	251	4	1	1 15 7·90
		3	242	237	5	..	1 12 0·81
		4	257	250	7	..	1 15 3·59
		5	199	197	2	..	1 6 9·46
		6	192	190	2	..	1 4 4·38
		x	1	1	..	..	0 0 1·75
		..	1,371	1,338	33	1	9 4 3·40
38	W. Cook, Point Nepean-road, Carrum	1	224	219	5	..	1 8 10·76
		2	255	255	..	1	1 15 9·43
		3	213	212	1	1	1 9 5·21
		4	227	227	..	..	1 10 11·77
		5	239	239	..	..	1 14 0·17
		6	189	188	1	..	1 4 8·22
		x	2	2	..	..	0 0 3·75
		..	1,349	1,342	7	2	9 4 1·31
37	T. A. Mentiplay, Somerville ..	1	226	222	4	..	1 11 2·38
		2	227	225	2	..	1 9 6·78
		3	216	215	1	..	1 8 2·81
		4	209	192	17	1	1 6 0·35
		5	139	139	..	..	1 0 8·73
		6	256	249	7	..	1 15 7·48
		x	1	1	..	..	0 0 1·75
		..	1,274	1,243	31	1	8 11 6·28
28	"Weblaw" Poultry Farm, (Alexr. Webster), Ashley-street, Reservoir	1	205	190	15	..	1 5 11·53
		2	261	252	9	1	1 16 1
		3	219	178	41	1	1 9 5·48
		4	213	203	10	1	1 8 5·66
		5	195	169	26	1	1 5 0·16
		6	186	173	13	2	1 2 5·07
		x	2	2	..	..	0 0 3·42
		..	1,281	1,167	114	6	8 7 8·32

Section A—*continued.*

Class 2.—Leghorns, Dry Mash (White Leghorns)—*continued.*

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
							£ s. d.
31	O. H. Gepp, "Strathalan," Greensborough-road, Macleod	1	271	239	32	6	1 16 7·82
		2	204	197	7	1	1 6 8·14
		3	215	214	1	..	1 8 4·86
		4	236	233	3	1	1 10 7·54
		5	188	171	17	..	1 4 1·23
		(*d*) 6	130	121	9	1	0 17 11·89
		x	2	2	..	..	0 0 3·5
		..	1,246	1,177	69	9	8 4 8·98
39	Kienast & Klug, "Sans Souci," Springvale-road, Springvale	1	236	221	15	..	1 12 8·03
		2	225	177	48	1	1 8 2·06
		3	201	184	17	1	1 5 5·38
		4	222	196	26	..	1 10 11·84
		5	203	186	17	1	1 7 4·08
		6	128	119	9	2	0 17 11·58
		x	1	1	..	..	0 0 1·75
		..	1,216	1,084	132	5	8 2 8·72
26	Claude Langley, Kidd's-road, Dandenong	1	212	174	38	1	1 7 9·94
		2	209	170	39	1	1 7 2·34
		3	200	181	19	..	1 7 11·83
		4	247	218	29	..	1 13 9·41
		(*d*) 5	77	38	39	1	0 12 11·57
		6	226	204	22	1	1 11 1·72
		x	2	1	1	..	0 0 3·31
		..	1,173	986	187	4	8 1 2·12
35	G. J. White, "Allwell" Poultry Farm, Glen Waverley	1	220	215	5	..	1 10 2·06
		2	225	222	3	..	1 10 8·16
		3	194	190	4	1	1 4 4·91
		4	170	170	..	..	1 0 7·98
		5	201	197	4	..	1 5 1·11
		6	209	209	..	..	1 6 3·5
		x	2	2	..	..	0 0 3·5
		..	1,221	1,205	16	1	7 17 7·22
34	Gedye Bros., Railway-road, Blackburn	1	211	202	9	4	1 7 0·54
		2	197	182	15	3	1 4 5·65
		3	225	172	53	2	1 9 4·37
		4	202	131	71	21	1 3 6·97
		5	184	172	12	..	1 3 10·77
		6	215	187	28	..	1 8 2·10
		x	..	..	..	..	..
		..	1,234	1,046	188	30	7 16 6·40

Section A—*continued.*

Class 2.—Leghorns, Dry Mash (White Leghorns).—*continued.*

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value. £	s.	d.
27	J. G. Alston, "Belle Vue" Egg Farm, 116 Dundas-street, Thornbury	1	229	160	69	12	1	9	0·12
		2	167	109	58	15	1	0	3·43
		3	222	128	94	15	1	8	1·20
		4	199	122	77	12	1	3	8·37
		5	222	171	51	11	1	9	1·28
		6	169	121	48	3	0	18	8·72
		x	5	3	2	..	0	0	8·13
		..	1,213	814	399	68	7	9	7·25
29	S. C. Handley, Box 14, Dandenong	1	200	195	5	..	1	6	7·44
		2	215	213	2	..	1	8	8·91
		3	187	187	..	..	1	5	0·69
		4	182	182	..	1	1	3	3·31
		5	169	169	..	..	1	2	4·83
		6	174	172	2	1	1	2	0·9
		x	..	..	..	..		..	
		..	1,127	1,118	9	2	7	8	2·08
24	"Tynong" Stud Poultry Farm (F. Eggo), Heath Hill	1	194	192	2	..	1	4	5·66
		2	209	199	10	2	1	8	3·78
		3	211	203	8	..	1	6	1·74
		4	191	191	..	..	1	3	0·01
		5	174	170	4	..	1	0	8·86
		6	178	175	3	..	1	3	0·82
		x	1	1	..	..		0	2·33
		..	1,158	1,131	27	2	7	5	11·20
32	A. Enticknap, 266 High-street, Windsor	1	195	191	4	..	1	6	3·13
		2	236	235	1	..	1	13	0·63
		3	201	194	7	1	1	6	7·06
		4	198	191	7	1	1	5	6·85
		5	57	57	..	..	0	7	0·32
		6	157	153	4	..	0	19	1·73
		x	2	2	..	..	0	0	3·5
		..	1,046	1,023	23	2	6	17	11·22
40	S. Rainer, Gordon-street, Deepdene	1	171	166	5	..	1	0	3·40
		2	207	204	3	..	1	5	2·73
		3	204	195	9	1	1	4	9·28
		4	196	194	2	..	1	3	7·35
		5	194	187	7	..	1	3	8·41
		6	168	151	17	..		19	7·59
		x	2	2	..	..			3·5
		..	1,142	1,099	43	1	6	17	6·26

Section A—*continued.*

Class 2.—Leghorns, Dry Mash (White Leghorns)—*continued.*

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
							£ s. d.
25	R. R. W. Brown, P.O., Metropolitan Farm, Werribee	1	206	117	89	11	1 5 2·58
		2	140	127	13	3	17 7·97
		(*d*) 3	125	86	39	9	15 3·17
		4	224	181	43	3	1 10 0·18
		5	114	98	16	2	13 9·61
		(*d*) 6	155	115	40	3	1 2 2·57
		x	3	3	..	..	0 0 5·75
		..	967	727	240	31	6 4 7·83

Class 3.—Black Orpingtons, Wet Mash.

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
							£ s. d.
46	1st Prize, Champion Certificate— G. J. White, "Allwell" Poultry Farm, Glen Waverley	1	241	240	1	..	1 13 7·88
		2	200	200	..	..	1 9 9·51
		3	250	250	..	..	1 15 5·72
		4	227	227	..	..	1 14 2·07
		5	236	235	1	..	1 15 0·36
		6	183	182	1	..	1 7 4·33
		x	1	1	..	..	0 0 1·50
		..	1,338	1,335	3	..	9 15 7·37
48	2nd Prize, Government Certificate— W. Cullen, Werribee Poultry Farm, Werribee	1	256	255	1	..	1 14 10·92
		2	208	201	7	1	1 5 8·82
		3	228	222	6	1	1 8 6·62
		4	289	234	55	1	1 18 8·69
		5	196	178	18	..	1 4 1·40
		6	287	279	8	..	2 0 7·51
		x	2	2	..	..	0 0 4·25
		..	1,466	1,371	95	3	9 13 0·21
43	3rd Prize, Government Certificate— S. E. Dickins, 59 King-street, Geelong West	1	235	200	35	..	1 11 4·26
		2	253	245	8	..	1 15 9·91
		3	155	117	38	3	0 18 11·89
		4	247	223	24	..	1 13 2·92
		5	241	229	12	1	1 13 7·49
		6	260	229	31	1	1 15 4·56
		x	1	1	..	1	0 0 1·50
		..	1,392	1,244	148	6	9 8 6·53
47	T. L. Eastaugh, Point Nepean-road, Highett	1	265	261	4	1	1 16 6·52
		2	195	177	18	..	1 6 6·88
		3	215	187	28	1	1 6 10·02
		4	198	185	13	1	1 5 5·27
		5	197	191	6	..	1 5 4·62
		6	224	212	12	..	1 11 11·60
		x	3	2	1	..	0 0 6·31
		..	1,297	1,215	82	3	8 13 3·22

Section A—*continued.*

Class 3.—Black Orpingtons, Wet Mash—*continued.*

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
							£ s. d.
51	H. J. Hulme, Bobinawarrah, via Wangaratta	1	210	158	52	1	1 5 11·30
		2	201	171	30	1	1 6 3·03
		3	256	150	106	4	1 12 2·66
		4	164	140	24	3	1 1 9·18
		5	236	191	45	2	1 10 7·45
		6	230	182	48	5	1 9 9·66
		x	2	2	..	..	0 0 3·75
		..	1,299	994	305	16	8 6 11·03
54	Wingood Poultry Yard (Theo. A. Goodwin), 8 Peel-street, Kew	1	216	197	19	..	1 9 4·62
		2	191	185	6	1	1 5 8·98
		3	205	191	14	1	1 9 0·90
		4	233	219	14	1	1 11 7·18
		5	200	189	11	..	1 8 8·54
		6	138	131	7	..	0 19 2·32
		x	7	7	..	..	0 0 10·83
		..	1,190	1,119	71	3	8 4 7·37
55	Gedye Bros., Railway-road, Blackburn	1	189	106	83	2	1 2 9·98
		2	165	127	38	6	1 1 6·85
		3	222	189	33	1	1 9 0·43
		4	251	164	87	5	1 12 2·65
		5	241	218	23	1	1 12 9·24
		6	191	130	61	3	1 4 3·68
		x	4	4	..	..	0 0 6·67
		..	1,263	938	325	18	8 3 3·50
49	T. Kettle, "Merris," Colac ..	1	250	231	19	..	1 14 10·84
		2	132	102	30	1	0 17 1·06
		3	166	165	1	1	1 3 11·37
		4	254	247	7	1	1 16 4·18
		5	173	159	14	1	1 2 9·22
		6	160	155	5	..	1 1 9·58
		x	2	2	..	..	0 0 3·50
		..	1,137	1,061	76	4	7 17 1.75
45	C. C. Dunn, "Spero" Stud Poultry Farm, Moorabbin-road, Cheltenham	1	169	147	22	1	1 2 2·68
		2	163	156	7	..	1 3 0·14
		3	145	138	7	..	0 19 10·08
		4	226	221	5	1	1 10 9·43
		5	211	210	1	..	1 7 8·62
		6	205	193	12	..	1 7 2·71
		x	4	4	..	..	0 0 8·67
		..	1,123	1,069	54	2	7 11 6·33

Section A—*continued.*

Class 3,—Black Orpingtons, Wet Mash—*continued.*

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
							£ s. d.
56	W. E. Ford, c/o "Rosette" Poultry Farm, Lower Ferntree Gully	1	177	166	11	..	1 0 11·49
		2	247	234	13	2	1 14 0·77
		3	169	166	3	..	1 2 7·38
		4	186	181	5	1	1 4 10·32
		5	196	185	11	..	1 4 0·92
		6	187	173	14	1	1 4 3·98
		x	4	3	1	..	0 0 7
		..	1,166	1,108	58	4	7 11 5·86
52	H. Shaw. 15 Mayfield-street, East St. Kilda	1	157	152	5	..	1 1 2·03
		2	229	216	13	..	1 11 10·98
		3	152	144	8	..	1 0 5·12
		4	209	207	2	..	1 8 2·28
		5	194	182	12	1	1 6 0·54
		6	184	181	3	..	1 3 1·87
		x	2	1	1	..	0 0 3·56
		..	1,127	1,083	44	1	7 11 2·38
44	J. Wear, "Nonpariel" Poultry Farm, Werribee	1	115	112	3	..	0 16 6·12
		(*d*) 2	47	27	20	1	0 8 5·24
		3	263	236	27	..	1 17 0·18
		4	215	214	1	..	1 12 3·75
		5	242	240	2	..	1 13 1·25
		6	174	102	72	39	1 3 3·44
		x	1	1	..	..	0 0 1·75
		..	1,057	932	125	40	7 10 9·73
53	R. R. Christie, "St. Elmo," Bentleigh	1	168	125	43	4	1 2 9·43
		2	155	147	8	3	1 0 3·56
		3	174	160	14	2	1 4 2·17
		4	151	137	14	..	0 19 8·47
		5	196	177	19	3	1 5 9·29
		6	204	145	59	8	1 6 5·97
		x	2	2	..	1	0 0 3·0
		..	1,050	893	157	21	6 19 5·89
50	W. K. Grady, Lockington	(*d*) 1	138	111	27	3	0 16 11·27
		2	188	100	88	27	1 2 11·29
		3	241	182	59	12	1 12 3·49
		4	156	131	25	7	0 19 6·64
		5	148	62	86	50	0 17 4·75
		6	186	167	19	1	1 3 3·38
		x	..	..	..	..	..
		..	1,057	753	304	100	6 12 4·82

Section A—*continued.*

Class 4.—Anconas, Wet Mash.

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value. £ s. d.
60	1st Prize, Champion Certificate— Farrin Webb, "Rafa," Traralgon	1	163	143	20	2	0 19 3·47
		2	192	163	29	2	1 3 4·36
		3	185	144	41	1	1 2 6·71
		4	211	191	20	..	1 8 0·72
		5	183	166	17	..	1 3 3·56
		6	165	154	11	..	1 0 9·00
		x	1	..	1	..	0 0 1·31
		..	1,100	961	139	5	6 17 5.13

Class 5.—Black Minorcas.—Wet Mash.

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value. £ s. d.
61	H. Miller, 64 Childers-street, Kew	1	103	98	5	..	0 12 5·94
		2	137	100	37	17	0 17 3·87
		3	191	150	41	9	1 4 7·92
		4	159	134	25	11	0 18 8·95
		5	76	72	4	1	0 8 10·35
		6	101	94	7	1	0 11 10·12
		x	2	2	..	..	0 0 3·50
		..	769	650	119	39	4 14 2·65

Class 9.—Rhode Island Reds, Wet Mash.

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value. £ s. d.
67	1st Prize, Champion Certificate— McCormack & Kinzel, 7 Wigton-street, Ascot Vale	1	147	147	..	..	0 17 8·20
		2	125	122	3	..	0 16 7·73
		3	236	236	..	..	1 13 8·14
		4	227	226	1	1	1 11 9·87
		5	183	181	2	2	1 5 10·06
		6	183	147	36	..	1 4 2
		x	1	1	..	..	0 0 1·75
		..	1,102	1,060	42	3	7 9 11·75
63	H. Dibbs, Balfe-crescent, West Brunswick	1	149	146	3	..	0 18 6·55
		2	212	206	6	2	1 9 9·44
		3	129	122	7	..	0 17 6·47
		4	183	168	15	1	1 6 0·00
		5	103	95	8	1	0 13 0·02
		6	110	97	13	2	0 14 3·42
		x	8	7	1	1	0 1 6·31
		..	894	841	53	7	6 0 8·21

Section A—*continued.*

Class 9.—Rhode Island Reds, Wet Mash—*continued.*

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade	Second Grade.	Under Weight.	Total Value. £ s. d.
65	S. Baddeley, "Boscobel," Upper-road, Heidelberg	1	115	84	31	5	0 13 8·48
		2	179	134	45	4	1 3 2·42
		3	184	159	25	1	1 2 9·41
		4	164	131	33	3	0 19 8·08
		5	169	142	27	1	1 1 5·50
		6	109	91	18	..	0 11 11·13
		x	3	2	1	1	0 0 6·31
		..	923	743	180	15	5 13 3·33
64	Farrin Webb, "Rafa," Traralgon	1	145	141	4	..	0 17 1·80
		2	136	136	..	..	0 18 11·91
		3	167	167	..	..	1 1 1·01
		4	178	178	..	..	1 2 3·92
		5	128	128	..	..	0 15 8·01
		6	121	121	..	..	0 15 9·07
		x	7	7	..	..	0 1 3·50
		..	882	878	4	..	5 12 3·22
62	L. Faulkner, 6 Normanby-street, Moonee Ponds	1	174	173	1	..	1 1 11·97
		2	193	180	13	..	1 4 4·83
		(*d*) 3	52	47	5	..	0 6 1·08
		4	117	110	7	..	0 14 0·51
		5	135	131	4	..	0 17 10·08
		6	148	133	15	1	0 17 2·19
		x	5	4	1	..	0 0 8·17
		..	824	778	46	1	5 2 2·83
66	H. Shaw, 15 Mayfield-street, East St. Kilda	1	59	59	..	..	0 7 1
		2	167	161	6	..	1 1 5·41
		3	152	151	1	1	0 17 11·33
		4	147	147	..	..	0 17 3·59
		5	92	92	..	..	0 10 2·18
		6	129	129	..	..	0 15 9·36
		x	16	16	..	..	0 2 5·16
		..	762	755	7	1	4 12 2·03

Section B—Individual Birds.

Pen No.	Name.	Total Eggs.	First Grade.	Second Grade.	Eggs Under Weight.	Total Value. £ s. d.
	Class 1.—White Leghorns, Wet Mash.					
193	T. A. Mentiplay	311	308	3	..	2 4 2
206	G. McDonnell	273	265	8	..	1 17 7.92
172	V. F. Webb	268	259	9	..	1 17 7.60
203	Mrs. Fretwell	273	252	21	1	1 16 9
179	Norman Meyers	259	255	4	..	1 16 3
156	G. E. Rees	266	225	41	1	1 15 10
149	B. Harrison	248	248	..	..	1 15 2
185	J. Walker	246	234	12	1	1 14 7
152	E. and D. O'Mullane ..	242	238	4	..	1 14 0
167	Mrs. A. Oxley	244	219	25	..	1 13 3
189	H. R. McChesney	236	230	6	1	1 13 1
164	Don Granter	238	238	..	..	1 13 0
151	E. and D. O'Mullane ..	239	236	3	..	1 12 9
195	W. Cullen	242	221	21	1	1 12 5
211	Ingram and Son	235	213	22	..	1 12 5
188	Navara P.F.	225	225	..	..	1 11 11
173	C. R. Fagg	237	184	53	..	1 11 8
205	G. McDonnell	240	231	9	1	1 11 5
198	W. J. Flack	252	214	38	2	1 11 4
194	T. A. Mentiplay	226	215	11	..	1 10 10
157	P. N. Tilley	235	223	12	..	1 10 8
221	M. G. Leech	226	195	31	4	1 10 8
216	H. Shaw	225	220	5	..	1 10 7
218	Kadima P.F.	225	206	19	..	1 10 5
174	C. R. Fagg	231	199	32	1	1 10 3
150	B. Harrison	247	109	138	1	1 10 2
192	F. Milne	222	217	5	1	1 9 11
168	Mrs. A. Oxley	225	189	36	2	1 9 10
212	Ingram and Son	226	207	19	..	1 9 8
180	Norman Meyers	215	215	..	..	1 9 6
186	J. Walker	220	220	..	..	1 9 4
183	E. C. Hawkins	211	211	..	1	1 8 10
187	Navara P.F.	214	213	1	1	1 8 10
158	P. N. Tilley	212	194	18	..	1 8 5
223	Garrett Dwyer	209	208	1	..	1 8 3
165	A. A. Smith	211	154	57	..	1 7 9
208	Mrs. J. Viney	213	182	31	..	1 7 8
215	H. Shaw	204	157	47	4	1 7 7
200	F. G. Julyan	201	201	..	..	1 7 5
199	F. G. Julyan	198	196	2	..	1 7 1
220	P. J. Wills	232	137	95	6	1 7 0
163	Don Granter	193	193	..	..	1 7 0
191	F. Milne	183	179	4	5	1 6 11
154	W. J. Pearce	212	205	7	..	1 6 9
171	V. F. Webb	217	114	103	..	1 6 6
159	J. J. Condon	213	213	..	..	1 5 9
161	G. G. Stud	191	191	..	..	1 5 8
153	W. J. Pearce	203	202	1	..	1 5 6
222	M. G. Leech	176	176	..	..	1 5 4
177	Todd and Mentiplay Bros. ..	208	202	6	..	1 5 2
182	R. R. Christie	220	117	103	..	1 5 0
202	H. C. Clark	211	169	42	1	1 4 10
190	H. R. McChesney	201	175	26	1	1 4 7

Section B—*continued.*

Pen No.	Name.	Total Eggs.	First Grade.	Second Grade.	Eggs Under Weight.	Total Value.
						£ s. d.
	CLASS 1.—WHITE LEGHORNS, WET MASH—*continued.*					
176	H. J. Bradshaw	220	107	113	..	1 4 7
226	C. Middleton	191	183	8	..	1 4 4
201	H. C. Clark	183	178	5	..	1 4 4
160	J. J. Condon	198	193	5	..	1 4 2
175	H. J. Bradshaw	193	192	1	..	1 4 0
219	P. J. Wills	193	193	..	2	1 3 11
181	R. R. Christie	187	186	1	2	1 3 11
207	Mrs. J. Viney	196	127	69	2	1 3 9
197	W. J. Flack	168	163	5	..	1 3 6
155	G. E. Rees	184	100	84	2	1 3 5
225	C. H. Middleton	188	76	112	6	1 2 2
166	A. A. Smith	175	121	54	2	1 1 9
196	W. Cullen	173	170	3	..	1 1 4
170	H. Beet	177	137	40	1	1 1 3
169	H. Beet	170	158	12	..	1 0 10
210	F. W. Gough	164	152	12	..	1 0 7
204	Mrs. Fretwell	169	163	6	..	1 0 6
162	G. G. Stud	180	132	48	1	1 0 2
224	Garrett Dwyer	156	156	..	..	0 19 3
217	Kadima P.F.	157	153	4	..	0 19 0
178	Todd and Mentiplay Bros. ..	159	157	2	..	0 18 8
214	E. Jones	160	109	51	1	0 18 1
213	E. Jones	171	76	95	5	0 17 6
184	E. C. Hawkins	116	115	1	..	0 13 6 *(d)*
209	F. W. Gough	105	87	18	4	0 13 5
	Class 2.—White Leghorns, Dry Mash.					
135	T. A. Mentiplay	277	272	5	..	1 19 0
126	E. and D. O'Mullane ..	280	276	4	..	1 18 11
121	M. Wiseman	266	266	..	..	1 17 10
125	E. and D. O'Mullane ..	263	262	1	..	1 17 6
139	W. Cook	265	264	1	..	1 17 0
134	Don Granter	268	253	15	..	1 16 10
110	O. H. Gepp	253	251	2	..	1 16 0
120	J. Walker	267	217	50	..	1 15 8
119	J. Walker	261	239	22	1	1 15 6
129	J. J. Condon	252	250	2	..	1 15 5
109	O. H. Gepp	251	234	17	..	1 14 11
111	A. E. Bailey	262	260	2	..	1 14 10
118	John Somers	255	240	15	1	1 14 10
136	T. A. Mentiplay	247	247	..	..	1 13 10
132	F. Milne	242	197	45	..	1 13 8
141	Mrs. L. Mills	267	138	129	..	1 13 3
98	G. McDonnell	234	233	1	2	1 13 2
94	H. C. Clark	256	170	86	..	1 13 1
88	H. W. Smith	241	237	4	..	1 13 0
113	A. J. Wallace	227	225	2	..	1 12 7
89	W. J. Flack	233	231	2	..	1 12 7
99	C. R. Fagg	229	228	1	..	1 12 4
133	Don Granter	246	225	21	..	1 11 10
100	C. R. Fagg	226	219	7	..	1 11 10

Section B—*continued.*

Pen No.	Name.	Total Eggs.	First Grade.	Second Grade.	Eggs Under Weight.	Total Value. £ s. d.
	CLASS 2.—WHITE LEGHORNS, DRY MASH—*continued.*					
127	G. A. Burchell	219	219	..	..	1 11 6
90	W. J. Flack	241	213	28	..	1 11 6
81	R. R. W. Brown	240	191	49	..	1 11 5
128	G. A. Burchell	236	221	15	..	1 11 4
140	W. Cook	219	219	..	..	1 11 3
104	H. J. Bradshaw	228	227	1	..	1 11 2
79	Tynong Stud P.F.	223	222	1	..	1 11 0
108	Norman Meyers	258	110	148	1	1 10 10
85	C. Lycett	226	210	16	..	1 10 6
82	R. R. W. Brown	224	180	44	1	1 10 5
86	C. Lycett	219	219	..	..	1 10 2
124	H. R. McChesney	232	227	5	..	1 10 0
97	G. McDonnell	213	213	..	..	1 9 10
117	John Somers	212	212	..	..	1 9 4
122	M. Wiseman	200	188	12	..	1 9 4
80	Tynong Stud P.F.	219	211	8	1	1 9 3
142	Mrs. L. Mills	220	219	1	..	1 9 2
96	A. A. Smith	213	189	24	..	1 8 11
107	Norman Meyers	220	210	10	..	1 8 10
83	Claud Langley	206	206	..	..	1 8 6
92	P. N. Tilley	220	158	62	3	1 8 2
116	R. R. Christie	210	196	14	1	1 8 1
130	J. J. Condon	233	163	70	6	1 7 11
115	R. R. Christie	216	184	32	..	1 7 8
123	H. R. McChesney	201	187	14	..	1 6 10
106	J. Pierce	197	166	31	..	1 6 8
137	Claremont Pens	205	203	2	..	1 6 8
138	Claremont Pens	205	78	127	19	1 5 6
114	A. J. Wallace	181	171	10	..	1 5 5
95	A. A. Smith	198	184	14	..	1 5 5
103	H. J. Bradshaw	189	189	..	..	1 5 0
91	P. N. Tilley	207	157	50	..	1 5 0
105	J. Pierce	220	49	171	5	1 4 9
112	A. E. Bailey	203	165	38	3	1 4 8
87	H. W. Smith	204	89	115	9	1 3 11
102	H. E. Lyon	186	169	17	..	1 3 0
131	F. Milne	127	125	2	..	1 1 2(*d*)
93	H. C. Clark	172	157	15	..	1 0 3
84	Claud Langley	113	108	5	..	0 18 2(*d*)
101	H. E. Lyon	64	20	44	12	0 8 3
	Class 3.—All Light Breeds (other than White Leghorns, Anconas, and Minorcas), Wet Mash (Pens 71–76, Brown Leghorns; 77–78 Sicilian Buttercups).					
76	F. W. Gough	216	214	2	..	1 9 7
78	S. C. Handley	205	205	..	1	1 7 2
72	W. Cocking	216	209	7	..	1 7 1
77	S. C. Handley	186	186	..	..	1 5 3
74	Navara P.F.	208	140	68	2	1 4 6
73	Navara P.F.	203	142	61	1	1 4 2
71	W. Cocking	177	150	27	4	1 2 3
75	F. W. Gough	156	156	..	..	0 18 5

Section B—*continued.*

Pen No.	Name.	Total Eggs.	First Grade.	Second Grade.	Eggs Under Weight.	Total Value.
						£ s. d.
	Class 4.—Black Orpingtons, Wet Mash.					
29	T. A. Mentiplay	298	166	132	..	1 18 10
37	W. Cullen	269	258	11	..	1 18 1
49	F. G. Julyan	267	267	..	..	1 17 10
15	E. J. McChesney	271	252	19	..	1 17 5
63	P. J. Wills	251	251	..	..	1 16 2
56	Ern Edwards	244	239	5	..	1 15 8
39	J. Taylor	255	244	11	..	1 15 5
51	V. F. Webb	259	227	32	..	1 15 3
57	Mrs. J. Viney	257	230	27	..	1 14 11
26	A. E. Bailey	255	207	48	..	1 14 7
11	E. C. Hawkins	238	233	5	..	1 14 3
18	Roy Sanders	252	239	13	..	1 14 3
62	Ingram and Son	241	241	..	..	1 14 3
41	L. C. Cropley	236	209	27	1	1 13 0
58	Mrs. J. Viney	227	209	18	..	1 12 8
7	J. A. Naylor	245	190	55	4	1 12 8
34	S. Vinall	236	210	26	1	1 12 6
50	F. G. Julyan	223	223	..	..	1 12 3
43	H. Shaw	237	207	30	..	1 12 0
6	H. Pidgeon	229	204	25	1	1 10 8
9	C. C. Dunn	211	206	5	..	1 10 8
17	Roy Sanders	218	218	..	..	1 10 8
33	S. Vinall	221	140	81	1	1 10 2
27	D.C.S.P.F.	201	198	3	..	1 10 0
20	H. R. McChesney	212	210	2	..	1 9 7
47	A. H. Cocks	221	218	3	3	1 9 7
28	D.C.S.P.F.	202	202	..	..	1 8 8
46	C. Lycett	194	184	10	..	1 8 7
25	A. E. Bailey	222	168	54	5	1 8 2
38	W. Cullen	200	173	27	1	1 8 2
59	F. W. Gough	202	197	5	..	1 8 1
65	A. Siede and Sons	193	190	3	..	1 8 0(*d*)
12	E. C. Hawkins	216	212	4	..	1 8 0
24	Jack Ryan	200	198	2	..	1 7 7
35	R. R. Cochran	229	117	112	8	1 7 5
23	Jack Ryan	209	124	85	4	1 7 1
2	Colvin Bros.	209	117	92	8	1 6 6
32	C. E. Graham	182	180	2	..	1 6 5
40	J. Taylor	189	181	8	..	1 6 5
61	Ingram and Son	189	184	5	1	1 6 4
31	C. E. Graham	221	126	95	3	1 6 1
64	P. J. Wills	169	169	..	..	1 5 5(*d*)
1	Colvin Bros.	176	155	21	1	1 4 11
45	C. Lycett	215	33	182	55	1 4 5
14	T. L. Eastaugh	172	171	1	1	1 4 2
13	T. L. Eastaugh	178	172	6	..	1 3 11
55	Ern Edwards	181	152	29	2	1 3 10
30	T. A. Mentiplay	188	107	81	8	1 3 9
22	Farrin Webb	196	192	4	..	1 3 8
8	J. A. Naylor	159	130	29	..	1 3 5
10	C. C. Dunn	189	95	94	6	1 2 10
3	R. R. Christie	155	155	..	..	1 2 5
48	A. H. Cocks	167	134	33	2	1 2 4

Section B—*continued.*

Pen No.	Name.	Total Eggs.	First Grade.	Second Grade.	Eggs Under Weight.	Total Value.
						£ s. d.
	CLASS 4.—BLACK ORPINGTONS, WET MASH—*continued.*					
54	W. K. Grady	170	100	70	1	1 2 3
42	L. C. Cropley	171	114	57	2	1 1 10
4	R. R. Christie	159	128	31	9	1 1 2(*d*)
5	H. Pidgeon	145	126	19	..	1 1 1(*d*)
44	H. Shaw	150	149	1	..	1 0 9
21	Farrin Webb	164	162	2	3	1 0 0
36	R. R. Cochran	143	142	1	..	0 18 11
52	V. F. Webb	140	40	100	14	0 17 2
60	F. W. Gough	109	108	1	..	0 15 5
19	H. R. McChesney	84	56	28	..	0 15 3 (*d*)
66	A. Siede and Sons	91	90	1	..	0 15 0
53	W. K. Grady	143	4	139	48	0 13 6
16	E. J. McChesney	27	27	..	..	0 5 3 (*d*)

PRIZE LIST.

Section B.—Individual Birds.

Pen No.	Name and Address.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
						£ s. d.
	Class 1.—White Leghorns, Wet Mash.					
	1st Prize, Champion Certificate—					
193	T. A. Mentiplay, Somerville	311	308	3	..	2 4 2
	2nd Prize, Government Certificate—					
206	G. McDonnell, 150 Camberwell-road, Auburn	273	265	8	..	1 17 7·92
	3rd Prize, Government Certificate—					
172	V. F. Webb, 15 Heath-avenue, Oakleigh	268	259	9	..	1 17 7·60
	Class 2.—White Leghorns, Dry Mash.					
	1st Prize, Champion Certificate—					
135	T. A. Mentiplay, Somerville	277	272	5	..	1 19 0
	2nd Prize, Government Certificate—					
126	E. & D. O'Mullane, 24 Medley-street, South Yarra	280	276	4	..	1 18 11
	3rd Prize, Government Certificate—					
121	M. Wiseman, P.O., Oakleigh	266	266	..	..	1 17 10

Section B.—Individual Birds—*continued.*

Pen No.	Name and Address.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
						£ s. d.
	Class 3.—All Light Breeds (other than White Leghorns, Anconas, and Minorcas), Wet Mash (Pens 72 and 76, Brown Leghorns; Pen 78, Sicilian Buttercup).					
	1st Prize, Champion Certificate—					
76	F. W. Gough, "Honington," Arthur-st., Malvern North	216	214	2	..	1 9 7
	2nd Prize, Government Certificate—					
78	S. C. Handley, Box 14, Dandenong	205	205	..	1	1 7 2
	3rd Prize, Government Certificate—					
72	W. Cocking, Mickleham P.O., via Broadmeadows ..	216	209	7	..	1 7 1
	Class 4.—Black Orpingtons, Wet Mash.					
	1st Prize, Champion Certificate—					
29	T. A. Mentiplay, Somerville	298	166	132	..	1 18 10
	2nd Prize, Government Certificate—					
37	W. Cullen, Werribee Poultry Farm, Werribee ..	269	258	11	..	1 18 1
	3rd Prize, Government Certificate—					
49	F. G. Julyan, 496 Point Nepean-road, North Brighton	267	267	..	..	1 17 10

For the Greatest Value of Eggs laid by Individual Birds in each Class of Section A.

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value.
							£ s. d.
	Class 1.—Leghorns, Wet Mash (White Leghorns).						
	1st Prize, Champion Certificate—						
6	W. Cullen, Werribee Poultry Farm, Werribee ..	3	267	255	12	..	1 17 7·72
	2nd Prize, Government Certificate—						
8	J. J. West, 248 McKean-street, North Fitzroy ..	3	264	244	20	..	1 17 3·34
	3rd Prize, Government Certificate—						
7	A. J. Hill, "Sunraysia" Poultry Farm, Greensborough ..	1	267	235	32	1	1 16 5.04

For the Greatest Value of Eggs laid by Individual Birds in each Class of Section A—*continued.*

Pen No.	Name and Address.	Bird No.	Total Eggs.	First Grade.	Second Grade.	Under Weight.	Total Value. £ s. d.
	Class 2.—Leghorns, Dry Mash (White Leghorns).						
	1st Prize, Champion Certificate—						
31	O. H. Gepp, "Strathalan," Greensborough - road, Macleod	1	271	239	32	6	1 16 7·82
	2nd Prize, Government Certificate—						
36	N. Burston, 284 Glenferrie-road, Glenferrie.. ..	4	264	261	3	..	1 16 7·66
	3rd Prize, Government Certificate—						
30	A. J. Hill, "Sunraysia" Poultry Farm, Greensborough	2	256	242	14	..	1 16 5·74
	Class 3.—Orpingtons, Wet Mash (Black Orpingtons).						
	1st Prize, Champion Certificate—						
48	W. Cullen, Werribee Poultry Farm, Werribee ..	6	287	279	8	..	2 0 7·51
	2nd Prize, Government Certificate—						
48	W. Cullen, Werribee Poultry Farm, Werribee ..	4	289	234	55	1	1 18 8·69
	3rd Prize, Government Certificate—						
44	J. Wear, "Nonpariel" Poultry Farm, Werribee	3	263	236	27	..	1 17 0·18
	Class 4.—Anconas, Wet Mash.						
	1st Prize, Champion Certificate—						
60	Farrin Webb, "Rafa," Traralgon	4	211	191	20	..	1 8 0·72
	Class 9.—Rhode Island Reds, Wet Mash.						
	1st Prize, Champion Certificate—						
67	McCormack & Kinzel, 7 Wigton-street, Ascot Vale	3	236	236	..	..	1 13 8·14
	2nd Prize, Government Certificate—						
67	McCormack & Kinzel, 7 Wigton-street, Ascot Vale	4	227	226	1	1	1 11 9·87
	3rd Prize, Government Certificate—						
63	H. Dibbs, 3 Balfe-crescent, West Brunswick ..	2	212	206	6	2	1 9 9·44

Section A.—Pen Certificates.

First Class Certificates of Merit have been awarded to those pens in Section A which averaged 200 first-grade eggs.

Section B.—Individual Birds.

First Class Certificates of Merit have been awarded to those birds which laid 220 first-grade eggs, and Second Class Certificates of Merit to birds which laid 200 first-grade eggs.

TABLE 1.—SHOWING TOTAL NUMBER OF EGGS LAID BY EACH BREED OF BIRDS DURING THE COMPETITION, THE NUMBER OF EGGS OF EACH GRADE, AND THEIR VALUE.

(NOTE.—No value has been allowed for underweight eggs.)

Description.	No. of Birds.	Eggs Laid.				Value.								
		1st Grade.	2nd Grade.	Under Weight.	Total.	1st Grade.			2nd Grade.			Total.		
						£	s.	d.	£	s.	d.	£	s.	d.
LIGHT BREEDS.														
Wet Mash.														
White Leghorns	213	34,416	6,889	808	42,113	228	5	11	37	10	9	265	16	8
Anconas	6	961	139	5	1,105	6	0	0	0	17	5	6	17	5
Black Minorcas	6	650	119	39	808	4	0	1	0	14	1	4	14	2
Brown Leghorns	6	1,011	165	7	1,183	6	8	6	0	17	10	7	6	4
Sicilian Buttercup	2	391	..	1	392	2	12	5	..			2	12	5
Total Light Breeds, Wet Mash	233	37,429	7,312	860	45,601	247	6	11	40	0	1	287	7	0
Dry Mash.														
White Leghorns	163	31,859	3,313	233	35,405	214	5	8	19	0	8	233	6	4
Total Light Breeds, Wet and Dry Mash	396	69,288	10,625	1,093	81,006	461	12	7	59	0	9	520	13	4
HEAVY BREEDS.														
Wet Mash.														
Black Orpingtons	146	26,275	3,859	421	30,555	181	18	7	21	19	5	203	18	0
Rhode Island Reds	36	5,055	332	27	5,414	32	16	9	1	13	8	34	10	5
Total Heavy Breeds, Wet Mash	182	31,330	4,191	448	35,969	214	15	4	23	13	1	238	8	5
Total eggs laid during Competition	578	100,618	14,816	1,541	116,975	676	7	11	82	13	10	759	1	9

TABLE 2.—AVERAGE NUMBER OF EGGS LAID PER BIRD AND THE AVERAGE VALUE PER BIRD, SHOWING THE VARIOUS BREEDS AND DIFFERENT GRADES.

Description.	No. of Birds.	Average Number of Eggs Laid per Bird.				Average Value of Eggs Laid per Bird.								
		1st Grade.	2nd Grade.	Under Weight.	Total.	1st Grade.			2nd Grade.			Total.		
						£	s.	d.	£	s.	d.	£	s.	d.
LIGHT BREEDS.														
Wet Mash.														
White Leghorns.. ..	213	161·6	32·4	3·7	197·7	1	1	5	0	3	6	1	4	11
Anconas	6	160·1	23·1	·9	184·1	1	0	0	0	2	11	1	2	11
Black Minorcas	6	108·3	19·8	6·5	134·6	0	13	4	0	2	4	0	15	8
Brown Leghorns ..	6	168·5	27·5	1·1	197·1	1	1	5	0	3	0	1	4	5
Sicilian Buttercup ..	2	195·5	..	·5	196·0	1	6	2		..		1	6	2
Average Light Breeds, Wet Mash ..	233	160·6	31·4	3·7	195·7	1	1	3	0	3	5	1	4	8
Dry Mash.														
White Leghorns.. ..	163	195·5	20·3	1·4	217·2	1	6	4	0	2	4	1	8	8
Average of Total Light Breeds, Wet and Dry Mash ..	396	175·0	26·8	2·8	204·6	1	3	4	0	3	0	1	6	4
HEAVY BREEDS.														
Wet Mash.														
Black Orpingtons ..	146	180·0	26·4	2·8	209·2	1	4	11	0	3	0	1	7	11
Rhode Island Reds ..	36	140·0	9·2	·8	150·0	0	18	3	0	0	11	0	19	2
Average Heavy Breeds, Wet Mash ..	182	172·2	23·0	2·4	197·6	1	3	7	0	2	7	1	6	2
Average per Bird for Competition ..	578	174·1	25·6	2·6	202·3	1	3	5	0	2	10	1	6	3

Messrs. McCormack & Kinzel's Team of Rhode Island Reds.
Winners Class 9, Section A.
(Total eggs 1,102; value £7 9s. 11d.)

TABLE 3.—COMPARISON OF AVERAGE NUMBER OF EGGS LAID PER BIRD FOR THE VARIOUS BREEDS, BOTH WET AND DRY MASH, 1926-17 COMPETITION WITH 1925-26 COMPETITION.

Breed.	1926–27. 48 weeks.	1925–26. 52 weeks.	1926–27. Difference.
ALL BREEDS—			
Total Birds in Competition—			
Total Eggs	202·3	206·3	— 4
1st Grade	174·1	164·6	+ 9·5
2nd Grade	25·6	38·9	—13·3
Under Weight	2·6	2·8	— ·2
LIGHT BREEDS—			
All Birds—			
Total Eggs	204·6	208·1	— 3·5
1st Grade	175·0	164·6	+10·4
2nd Grade	26·8	40·7	—13·9
Under Weight	2·8	2·8	..
Dry Mash—			
Total Eggs	217·2	218·7	— 1·5
1st Grade	195·5	186·1	+ 9·4
2nd Grade	20·3	31·4	—11·1
Under Weight	1·4	1·2	+ ·2
Wet Mash—			
Total Eggs	195·7	202·0	— 6·3
1st Grade	160·6	152·0	+ 8·6
2nd Grade	31·4	46·2	—14·8
Under Weight	3·7	3·8	— ·1
HEAVY BREEDS—			
Wet Mash—			
Total Eggs	197·6	202·8	— 5·2
1st Grade	172·2	164·6	+ 7·6
2nd Grade	23·0	35·3	—12·3
Under Weight	2·4	2·9	— ·5

THE CODLING MOTH

Cydia (Carpocapsa) pomonella, Linn.

ITS LIFE HISTORY AND CONTROL.

By C. French, Jun., Government Entomologist; and G. T. Levick, B.Agr. Sc., Assistant to Entomologist.

The Codling Moth, in all probability, originated in the home of the apple—South-western Europe—and has since spread throughout the world, becoming a serious pest wherever the apple is grown. In isolated places, however, as in Western Australia, a more or less successful attempt has been made through quarantine regulations to keep the insect out.

"Wormy apples" were the subject of comment by writers long before the Christian era, and doubtless these were the work of the codling grub. Certainly the codling has occupied a prominent place in entomological literature from the very earliest writings, and there is no doubt that this publicity has been well earned.

Losses Due to the Codling Moth.

The codling moth is primarily a pest of apples, though pears are almost as susceptible, whilst at times it attacks walnuts, and stone fruits such as apricots, peaches, and plums.

It is impossible to estimate with any accuracy the loss to the fruit-growing industry caused by the codling moth, but it may reasonably be taken that in an average year this pest is responsible for damage ranging from 2 to 15 or 20 per cent. of the apple crop in different districts, the loss varying according to the climatic conditions, and averaging, perhaps, 5 per cent. over the whole State. This loss would amount to about 100,000 bushels, valued at over £25,000 per annum, quite apart from the expenses incidental to buying and applying sprays and carrying out other treatments.

Description and Life History.

The codling moth is most active towards dusk, and it is seldom seen in the orchard unless disturbed by the spraying operations, the grey-brown colour of the wings blending very effectively with the colour of the bark on which the moth rests.

The moth measures about ¾ inch across the outstretched wings, which are of a general brown colour banded with grey, the hind wings being more of a lighter brown colour. It is easily distinguished from any other moth by the possession of a large oval, dark brown spot, with coppery coloured streaks, near the tip of each forewing.

Over-wintering.—The codling moth is carried over from season to season in the form of a full grown grub or larva, or occasionally as a pupa, which passes the winter in a cocoon beneath the loose bark or in similar protected places about the tree. When the grub has emerged from apples which have been picked, the cocoon may be spun in the corners of cases or in cracks round the packing shed, &c.

Codling Moth (*Cydia pomonella*).

1a. Branch of tree and fruit showing damage to pips and mode of escape of caterpillar.
1b. Showing where egg is deposited.
2. Perfect insect, slightly enlarged.
3. Caterpillar lowering itself by a silken thread spun by insect. (Life size).
4. Chrysalis of moth in bark. (Life size).
5. Caterpillar preparing for change into chrysalis stage. (Life size).
6. Upper portion of Caterpillar, showing mandibles, &c. (Magnified).
7. Under portion of Caterpillar, showing mandibles, &c. (Magnified).

The Spring Brood.—With the first warm days of spring, the over-wintering grubs pupate, and the first moths begin to emerge about the time the petals of the apple blossom are falling. The time of emergence varies fairly widely, according to the climate and the seasonal variation in the weather. Experiments are at present being carried out to determine the relationship between the weather conditions and the emergence of these spring brood moths.

After a few days these moths proceed to lay their eggs. The eggs are minute, semi-transparent, whitish coloured, flattened bodies, about the size of a small pin's head. They are laid on the fruit or on the leaves and twigs. American experiments have shown the average number of eggs laid per moth to be about 30. The larvæ or grubs hatch from the eggs in about a week's time, though definite records of this period in Victoria are not available. The young grubs measure about 1-16th of an inch in length, and, leaving the eggs, crawl around for some time to find a suitable spot to attack the apple. Even those which hatch out on the fruit do not bore into the apple immediately, but move about sufficiently long to find a favoured spot—generally, in the early brood, the calyx; though later broods frequently attack the sides of the apple, especially where two fruits touch, or a leaf forms a shelter over portion of the apple.

The newly hatched grub appears to feed for a short time near the surface of the fruit, apparently gaining strength before boring into the core. Here it lives until full grown. When this stage is about reached, the codling bores its way to the surface, at first leaving this exit hole blocked with excrement. Later, the full-grown grub leaves the fruit by way of this tunnel, and seeks a place to make its cocoon.

If the apple is still on the tree, the grub lowers itself by a thread to the ground, creeps to the trunk of the tree, and spins its cocoon among the rough bark, frequently scooping out a shallow oval cavity with its jaws. The grub may creep down the branches to the trunk instead of lowering itself to the ground.

Cocoons are seldom found in the soil, but if the tree is supported with props, or if cases are stored beneath it, the grub will frequently form its cocoon in these.

The cocoon is thin, but tough, and is made of silk, into which is interwoven particles of the bark, &c., on which it is made.

In the case of the spring brood larvæ, the grub in a short time changes to the pupa, though in the case of later broods, it generally remains in the larval stage throughout the winter. When about to transform to the pupal stage, the grub forms an exit tube to facilitate the egress of the moth.

The pupa or chrysalis is very different in appearance from the grub, being shorter, one-third to one-half an inch in length, of a bright mahogany brown colour. After lying quiescent in the pupal stage for a variable period, probably about ten days in the case of summer broods, the pupa, by means of short spines on the hinder portion of its body, wriggles towards the exit tube, the skin splits at the front end, and the perfect moth emerges.

Nature of Injury.

The codling moth grub is an internal feeder; by far the greatest injury is done to the inside of the fruit, little indication of the inward havoc being revealed by a casual examination of the exterior.

The young grub, as a rule, feeds for a short time near the surface, later working its way to the centre of the fruit where it devours the core tissue and some of the seeds, leaving an unpleasant mass of excrement in their place.

An apple affected at an early stage will fall prematurely, but fruit attacked at any stage is rendered unfit for marketing.

A type of injury frequently found on sprayed apples is known as a "sting." This occurs when a young grub is poisoned in the attempt to enter the fruit. A small hole up to a quarter of an inch in depth is left, and as this is frequently made more conspicuous by the development of colour round the spot, and by its enlargement due to the entry of fungi, &c., the "stinging" of the fruit seriously detracts from its market value.

Natural Enemies.

Birds are instrumental in destroying large numbers of the codling moth larvæ, particularly when these are sheltering in their cocoons under the bark, &c. Two species of special value in this regard are known as the codling moth birds, while the brown tree-creeper, fly-catchers, fantails, wrens, robins, pardalotes, and other insectiverous birds are very useful in destroying the grubs.

Wasps of various species, parasitic chalcids and ichneumons have been reared from the cocoons of codling moth grubs. Predaceous beetles belonging to the cleridæ and carabidæ are frequently found under bandages, &c., devouring the grubs, and ants will carry off any with which they come in contact.

Remedial Measures.

Orchard Sanitation.—This is by far the most important feature of codling moth control, and frequently the most neglected. The high percentage of infection in the vicinity of the fruit houses and packing sheds, often in spite of extra sprays, shows very clearly that sprays, however carefully applied, cannot cope with the pest unless the orchard is kept clean.

At the end of each season the orchardist should take particular care to free his packing sheds and surroundings from the codling grubs which have crawled from infested apples and made cocoons in cracks and sheltered places. The provision of moth-proof fly wire screens over doors and windows to prevent egress of emerging moths is a simple and inexpensive method wherever practicable.

Cases used in transporting fruit from the orchards, and all returned cases, should be examined, and any grubs in them killed. The best method is to dip all cases in boiling water to every 20 gallons

at which a pound of washing soda has been added. An immersion of two minutes in this solution is desirable. This treatment has a double effect, in that it destroys the spores of mould and other fungi as well as all insect pests hidden in the cases.

As most windfalls are affected with codling they should be gathered up once a week during the apple-growing season, and destroyed by burning or boiling, or else fed to pigs. If the apples are given to pigs, it is essential that they be fed as soon as gathered, for if they are stored they soon become a hatchery for the moths. It is also payable to have all infected apples picked at least once or twice during the season and treated as suggested above.

Poles and props used in the orchard should be kept free from bark and examined for codlings. This is a very important precaution, upwards of 80 grubs having been found on one pole in an orchard last season.

Spraying with arsenates has been the standard method of dealing with the codling moth pest since sprays were introduced about the beginning of the present century, and with the improved spraying material and apparatus for use in application, it appeared that this was quite an efficient control. However, in recent years, both in America and the warmer portions of Victoria, the control of the codling by arsenates has not been entirely satisfactory, though there is little doubt that more thorough methods of application would lead to a decided improvement.

In consequence of the apparent partial ineffectiveness of the arsenicals, and also the restrictions imposed by Great Britain in regard to the amount of arsenic allowed on imported fruit, attention has been directed towards other methods of control which had been abandoned in favour of spraying.

However, up to date there has been no evidence that spraying with arsenical spray mixtures is likely to be replaced by other methods. Bandaging the trees, trapping the moths, and the application of oil ovicides are useful, and in some parts apparently essential adjuncts to spraying, but in no sense can they be considered a substitute.

Arsenate of lead, either in the powder or the paste form, has displaced all other arsenical preparations, and is by far the safest and most efficient. It is necessary to apply all sprays thoroughly, and with a pressure of about 250 lb. per square inch for best results.

The quantities of arsenate of lead should be weighed out; good results cannot be expected when the quantities are merely guessed at. It is advisable to fill the pump with the required amount of water, and start the engine before adding the arsenate, otherwise the arsenate will sink to the bottom, and the first trees will get a strong spray, and that given to the rest will be too weak.

The agitators supplied on power pumps are quite efficient in keeping the arsenate of lead in suspension, but once it has been allowed to settle on the bottom an uneven spraying is almost bound to result.

Spray Table.

(*a*) CALYX SPRAY.

This spray should be applied immediately the petals have fallen from the blossom and before the calyx closes. Recent experiments have indicated that a stronger solution, 4 lb. of powder in 80 gallons of water, is more effective than the usual strength (2½ lb. in 80 gallons). It is considered by some growers that it is not necessary, for in many seasons the first moths have not emerged at this time,

A Good Type of Bandage fixed with a Single Nail.

but as the majority of the first brood grubs, irrespective of the time of emergence of the moths, enter through the calyx, this spray is very essential in all cases.

(*b*) COVER SPRAY.

The cover spray is applied at the normal strength (2½ lb. powdered arsenate in 80 gallons of water) about three weeks later than the Calyx Spray. It is designed to cover the young fruit and protect them from the grubs of the first brood, which would attack the apples at other places than the calyx.

(*c*) Other Cover Sprays.

The number of cover sprays necessary will vary with the district and the season, one spraying every four or five weeks being necessary in districts where the codling is a serious pest.

Spreaders, generally composed of calcium caseinate, have been advocated for use with the arsenate of lead sprays as giving a more even coating of arsenic to the fruit. An analysis of experiments carried out in other countries, however, seems to show that the use of spreader is of rather doubtful value in increasing the efficacy of the arsenate, whilst it is apt to be responsible for larger amounts of residual arsenic on the fruit when it reaches the consumer.

Type of Breeding Cage used in Codling Moth Experiments at Harcourt.

Ovicidal Sprays.

A special summer oil spray has been used in America with the object of killing the eggs of the codling moth, but has not yet been tested here, though it is hoped to try this type of spray in the coming season.

Bandaging.

By "bandaging" is meant the tying of bands, generally of hessian, around the trunks of apple trees, from which all rough bark has been

removed. The codling grubs are then forced, through lack of other shelter, to pupate within the bands, which may be periodically examined and the grubs destroyed.

In bandaging, the following points need special attention:—

1. Scraping the trees: All rough bark must be thoroughly removed, otherwise half the efficacy of the band is lost.

2. The material used must be of a fairly thick and close character. Strips from a wool bale are perhaps the best, whilst bran bags are practically useless on account of the openness of the weave.

3. Bands should be examined every week, otherwise they form ideal breeding grounds for the codling, and unless this condition is complied with, it is much better to have no bandages at all.

When these conditions are carefully carried out, it will be found that bandaging is an exceedingly useful adjunct to spraying. The cost is not excessive. If the bandages are cut from old wool packs they will cost less than 1d. each for material and labour in cutting them, while a man will bandage about 400 trees in a day.

USE OF TRAPS OR LURES.

Quite a considerable amount of work has been done in various parts of the world in the way of testing various substance for use as lures. Apple jelly was used in Germany in 1895, and since then, of all the preparation tested, vinegar and fermented apple juice appear to be the sole survivors. There are many conflicting opinions as to the probable and actual efficacy of lures, but it appears that in certain districts their use may be a useful adjunct to the other methods of codling moth control. The selected material, generally fermented apple juice diluted with an equal quantity of water, is placed in a container, often of tin, but preferably glass, which is hung in every second or third tree in the row. It is found that the best place to set the traps is in the upper third of the tree, as they catch many more moths in this position.

The moths are attracted to the fermenting juice, fall into it and are drowned. The material needs renewing about once a week.

Considerable numbers of moths are caught, and of some 600 individuals examined this year, an average of about 50 per cent. were found to be females.

SILAGE AS FEED FOR DAIRY COWS.

Though silage has a strong characteristic smell, good silage may be fed during milking. Some silage with a strong odour is preferably fed after milking. As milk is peculiarly susceptible to the absorption of odours, care must be taken in feeding it to milking animals to avoid every chance of this strong odour being absorbed by the fresh milk; and milkers, if they have been working with silage, should take care that their hands and clothes are thoroughly freed from the smell before they commence milking.—GEO. L. SUTTON, Director of Agriculture, Western Australia.

PLANT PATHOLOGY.

STUDIES IN EUROPE AND AMERICA.*

(Continued from page 261.)

By D. B. Adam, B.Ag.Sc., Plant Pathologist.

(5) Investigation of Agricultural Problems at English and Continental Institutions.

A feature about English institutions devoted to agricultural research which early impresses a visitor is the manner in which they have come into being and are sustained financially.

Most of us realize that the main mass of information gained through agricultural research may be generally useful; its application is not limited to the discoverer nor to a small group that may employ him. The principles determined on a few fields at Rothamsted, in England, have found world-wide application. For this reason, and because the usefulness of scientific discovery in agriculture is greatest when applied to the fullest possible extent, Governments, which have the interest of whole communities to conserve, encourage and support the community service that agricultural research gives. On this ground we think it quite natural that Governments in Australia and America should establish and support Agricultural Research Stations.

In England, however, many of the leading experimental stations have been established through private initiative, either of individuals or of groups, and still are in varying measure supported financially in this way. This state of affairs has much to commend it; obviously a tribute to the value of such research, it means, in addition, that a close contact between research and its application in the field will exist. This contact greatly benefits both; the farmer directly by the results he achieves, the research worker sees his problem more clearly and derives stimulus from success achieved in the field.

ROTHAMSTED EXPERIMENTAL STATION.

The Rothamsted Experimental Station is the oldest and most famous experimental station. It has a large and able staff, all devoted to the problems of crop production, the cultivation of the soil, the feeding of the plant, and the maintenance of healthy plant growth. Rothamsted's classical fields, with plots cropped continuously for over 70 years, its rotation fields, its manurial plots, its grass plots, its chemical, physical, biological, and statistical laboratories, could each provide interesting matter for description. However, since an adequate description of the varied activities of this important station would require a great deal of space, and because its work is more widely known, it is not proposed to further discuss the subject here.

* Report on investigational work in England, Europe, and United States of America. Previous portions of Mr. Adam's report were printed in this JOURNAL for January, February, April and May.

THE EAST MALLING RESEARCH STATION, KENT.

This station practically confines itself to horticultural problems, especially those concerning fruit trees. It is situated on open country on the border of the Kentish fruit-growing area.

The Australian visitor, used to the bush type of fruit tree, is impressed by the great preponderance of trees on standard stocks. The reason for using such trees, of course, is that the land underneath is available for other purposes; generally as grass land for grazing purposes.

These standard trees must be set so far apart that even when they are full grown they will not crowd one another; this means 36 feet or more. These standard trees are vigorous growers, and may not bear a full crop for very many years. The orchardist, anxious to get some fruit return from his land before his permanent standards are in bearing, will plant fillers—dwarf trees which come early into bearing and produce heavy crops for a time; at least, till the large standard trees are themselves bearing well. The success of this method obviously depends on the orchardist being sure that his fillers are dwarfs and that they will bear early—two conditions which in the past have not always been fulfilled.

Prior to the establishment of the East Malling Station, nurserymen and growers generally relied on "Paradise" stocks for producing their dwarf early prolific trees, and seedling or crab stocks for their vigorous-growing, strongly-rooted, permanent trees. The East Malling Station turned its attention to these "Paradise" stocks; the Agricultural and Horticultural Station at Long Ashton especially to crab-apple stocks.

The work on fruit tree stocks at East Malling, carried out in a scientific manner, is so uncommon and of such great interest to fruit-growers that I propose to discuss it at some length.

For most of the facts mentioned below I am indebted to articles written by the Director of the Station, Mr. R. G. Hatton, and published in various journals and papers.

In 1913, this work began by combing England and the Continent for samples of "Paradise" trees to be grown at East Malling.

In 1917, the first report was published, and this summarized showed that there were seven distinct recognizable varieties of "Paradise," that these varieties differed widely in vigour, early fruitedness, health, and type of rooting when grown on their own roots. Both in the stool bed (for layering) and the nursery row (for budding and grafting) these varieties behaved very differently; some showed highly desirable characteristics, others the reverse.

As these types or varieties were isolated as botanically distinct, they were established as mother plants for the reproduction of stocks of that particular type. These distinct types have been given the names Malling I., Malling II., &c. Problems associated with the stool bed —more rapid reproduction of desirable but shy rooting sorts and the nursery row—have been met and overcome, so that by 1918 sufficient of the various types were on hand to commence field tests in their use as stocks.

In field experiments with growing plants it is difficult to obtain results with significant difference which may be expressed by figures, because results are affected by soil conditions and the like, which obviously cannot be made identical for all plants tested.

In order to overcome such an unavoidable difference as that of soil, and to bring out the desired differences such as that due to different stocks, a mathematical device is employed, which enables the investigator to indicate the reliance that may be placed on his figures.

Typical 3-year-old Lane's Prince Albert on Broad-leaved English Paradise. Note vigour and no blossom. Compare with figure on the right.

Typical 3-year-old Lane's Prince Albert on Doucin (English Paradise). Note more moderate vigour and early blossoming as compared with tree in figure on the left.

This mathematical weapon increases in value according to the numbers of trees in the experiment. It is this necessity to work with numbers of trees, each of which takes up quite a large area of land and must remain in the experiment for a number of years to produce results, that makes field experiments with fruit trees a difficult and expensive business.

At East Malling, in 1919, 1 acre of trees, composed of Lane's Prince Albert—a weakish grower and quick cropper—and Bramley's Seedling—a vigorous grower but slower cropper—as graft scions on the fifteen different stocks were planted out; there are now 10 acres planted with 1,615 trees of six varieties on twenty or more stocks. The land is nearly uniform, and before the commencement of the test it had been evenly cropped and manured for six years. Latterly, all the scions used in any experimental set, both grafts and buds, have been obtained from one selected tree in actual cropping and of average vigour. These precautions, together with pruning, spraying, manuring as identical as is humanly possible, mean that the difference in results between different trees is due to the different stocks, if, of course, there are sufficient numbers of trees to determine and allow for the probable error of the experiment. To meet this condition not less than eight trees of any one variety on any one stock has been used; in some cases as many as from 20 to 32 in small groups in different parts of the field constitute a unit.

Records of about a dozen different features of these trees, such as the measurement of annual growth, the number and weight of crop harvested, the incidence of any pests or diseases, and on some the grades, colour, and keeping quality of the fruit, have been kept.

A table will illustrate the differences obtained on four different types of stock:—

TABLE I.

TABLE SHOWING AVERAGE FIGURE OF RECORDS TAKEN ON PRUNED APPLE TREES (VARIETY—LANE'S PRINCE ALBERT) SIX YEARS OLD.*

—	(*a*) Dwarfed.	(*b*) Semi-dwarfed.	(*c*) Vigorous.	(*d*) Very Vigorous.
On Stock	Type IX.	Type II.	Type I.	Type XVI.
Total growth	3,927 cm.	5,412 cm.	7,756 cm.	8,075 cm.
Weight of prunings	606 gr.	854 gr.	1,358 gr.	1,344 gr.
Girth at 30 cm.	105 mm.	136 mm.	154 mm.	154 mm.
Number of bloom trusses	345	372	225	95
First year of bloom	1920	1920	1921	1922
Number of fruits	125	93	33	10
Percentage of bloom setting ..	33	25	14	10
Ratio of wood to fruit buds setting ..	1·11 cm.	1·15 cm.	1·34 cm.	1·85 cm.
Axillary fruit buds on one year wood (1922)	1·3 cm.	1·8 cm.	1·29 cm.	1·60 cm.

* This table is an extract from the text of a lecture on "The Influence of Root Stock upon the Tree Fruits," by R. G. Hatton, at the International Horticultural Congress, Amsterdam, 1923.

Besides these figures, which need no comment, some remarks on quality differences should be added:—

(1) There is a definite difference in the fruit from different stocks. Cox's Orange Pippin and other varieties have shown remarkable colour and eating quality off trees grown on Type IX.,

whereas off other stocks, notably Type XXI., they were exceptionally grass green and unripe in appearance. Further work undoubtedly will show that these differences in fruit quality are also reflected in their cool storage qualities.

(2) The relative susceptibility of stocks to certain diseases and pests is a very important property of root stocks. The almost exclusive use of Northern Spy stocks in Australia is due to its ability to resist the attacks of woolly aphis more than to any other property it has. Work to date at East Malling has shown that the different types themselves do vary in their resistance to such diseases as powdery mildew, and to such pests as the apple and woolly aphis. The importance of obtaining a stock resistant to a trouble like woolly aphis, which attacks the roots but is otherwise suitable, is, of course, very important. As yet there is little evidence of the ability of stocks to transmit their quality of resistance to the scion.

Methods of research into the effect of quince stocks on pears, plum on peach, and cherry stocks are very similar to those used with apples. Vegatively reproduced stocks, such as quinces and certain plums—Brusels, Brompton, &c.—have been got together, properly classified, and propagated, just as earlier were "Paradise" stocks. Where seedling stocks are usually used, such as free pears and Myrobolans, selections of the most widely differing and promising seedings have been made, and are being propagated vegatively to obtain sufficient stocks of the one type for experimental purposes. Stock effects comparable to those with apples are showing themselves, but new problems have arisen with certain of the quince stocks for pears and several of the plum stocks, which are proving "incompatible"; that is, the stock and scion will not make a good union.

Obviously it takes a long time and much expense to test by field experiments the value, or in most cases the uselessness, of any particular stock. There is a very large field from which stocks could be chosen, and if any method could be found of indicating which ones are likely to be valuable and worthy of further tests, great advances would be possible. Actually there is a large amount of work being done with stock plants to discover some laboratory experiment which would enable the determination of its nature, its relationship, and perhaps its possible value as a stock.

If such a method were successful, the scope of field trials would be narrowed to include only those stocks likely to be useful, and results would be much more rapidly achieved.

It is well to indicate the practical application of these investigations to the fruit-growing industry.

The nurseryman, first, by knowing the root stock material, can eliminate undesirable, unhealthy, and incompatible or difficult-to-work stocks. By reducing the number of stock varieties he can obtain more uniform results and a higher percentage of first-grade trees.

In Australia we know as yet of no varieties or differences of type within the Northern Spy. We know that its root system resists the woolly aphis pest, but do we get the maximum possible return from all varieties grafted on the one type of stock and grown under all kinds of conditions? It is very difficult to believe that it can be so. The whole

field of stocks, including those for pears, plums, and peaches, while necessarily a fairly expensive one to investigate, is fraught with such possibilities that its cultivation in this country is most desirable.

While the problem of root stocks in its various aspects is the most important activity of this station, studies of the effect of different systems of pruning on different varieties over a number of years have been made. Such practices as leader tipping and leaving long, medium, or short spurs are being tested out experimentally. As a result of several years' work the station workers are now able to recommend pruning methods for particular varieties, whether the desire is to rear a strong vigorous tree for permanence or a tree without a specially good frame, but which will yield fruit early and plentifully, in short, a "filler" for twelve or thirteen years, when it will be renewed to make room for others. The station staff also includes an excellent staff of entomologists and plant pathologists working specially on fruit tree pests and diseases with a view to their control.

CHESHUNT EXPERIMENT STATION.

This station is particularly interesting as an example of co-operative effort on the part of a section of growers to solve problems peculiar to their industry. The Cheshunt Station is situated in the Lea Valley, 20 miles from London, where about 1,400 acres of land are covered with glass. Glass-house conditions of plant growing demand special methods of culture, of manuring, watering, heating, and of plant hygiene. In addition to the usual experiments with manures and with different varieties, experiments to stimulate growth by the use of carbon-dioxide are being carried out.

As is well known, plants extract carbon-dioxide from the air, where it exists in very small amounts, and from this gas it manufactures sugars, starch, and similar substances, which go to make up a large proportion of the plant. Obviously, if by increasing the amount of gas present we could induce the plant to take up more of this gas and manufacture more substances from it, we would get greater yields. Glass houses provide good opportunities for confining this gas with plants. Apart from the fact that the station has been induced to install a larger equipment as the result of preliminary experiments, little can be said about the success of these experiments.

A pleasing feature of this station is the intimate touch between the station staff and growers.

As in all applied scientific effort it is more than one-half the battle to convince the farmer of the worth of new methods. He may listen patiently to a lecture or talk, even become quite interested, but eventually goes home and practises his old methods. Demonstration in the field is what he wants; something definite, concrete, that he can see or feel. Experimental station workers carry out such tests on their plots, they convince themselves of the truth of their observations, but how hard is it to convey these truths? It can only be done by growers visiting the experimental station, not once in a few years, but often, to see work actually in progress, and to discuss it with the station workers.

Cheshunt Experimental Station, although quite small and appealing to a limited class of growers, in 1925 had 3,000 visits from growers! Perhaps this was due to the growers being anxious to secure some

return for their contribution to the upkeep of the station, or perhaps to the enthusiasm of the committee, on which the growers are represented, who controlled the station. In any case, it proves the vitality, the usefulness of the station, and must, of course, stimulate all to greater efforts.

The Experimental Station at Lausanne, Switzerland.

The Swiss, in the Canton of Vaud, which borders Lake Geneva, are a very practical people—the trait is reflected in their experimental station at Lausanne.

The station devotes itself mainly to viticultural problems, to variety tests, to methods of training, grafting, experiments, and spraying experiments, all of which are carried out on a spacious farm in the environs of the town. An interesting thing about many of these experiments is that they are arranged to guide the practice of vignerons from year to year, particularly spraying applied to control "Downy mildew." The occurrence of this disease varies from year to year, according to weather, and for its control it is difficult to lay down hard-and-fast rules. The station has established a good contact with growers, they bring their problems to it, and are guided wholly by the results obtained on the station from year to year, just as a big chemical factory or sugar refinery is really controlled from its laboratories. In the laboratory proper, fermentation processes, laboratory tests of new fungicides, studies of the life histories of insects are being made, in addition to answering innumerable questions of vignerons.

The Imperial Biological Station, Berlin, Germany.

This is a large well-organized station with a small area of land attached to it, situated in the suburb of Dahlem. From a laboratory point of view this station is the Rothamsted of Germany, except that perhaps its scope is more comprehensive. It has laboratories of chemistry, zoology, genetics, mycology, &c., which investigate the most fundamental problems associated with agriculture and forestry, such as the biology and physiology of parasitic insects, the nature and classification of fungi capable of parasitizing scale insects, the inheritance of disease resistance in plants, and so forth.

Results achieved are, from a layman's or the farmer's point of view, much less spectacular or apparently useful than that of the plant protection service stations dotted over the country. These stations are loosely affiliated with the central station, from which they derive their fundamental information to be given out to the farmer in a form that he can grasp, by demonstration, and by advice. One specially interesting department of the station deals with plant protectants, sprays, substances for pickling cereals, &c.

The tremendous output of German chemical works includes countless numbers of substances; some it is claimed will control "stinking" or "ball" smut in wheat, while others used as sprays will control aphis on various plants. The class of seed disinfectants is by far the largest, and specially devised laboratory tests are applied to discover those chemicals likely to be worth persevering with. The final tests are carried out on artificially infected seed sown in small rows in the field and repeated five times. Results are published widespread, and so farmers are guided in the use of the best remedies.

THE AGRICULTURAL HIGH SCHOOL, WAGENINGEN, HOLLAND.

Wageningen, a quiet little town in the heart of rural Holland, is an active centre of scientific agriculture. Here an immense institution—The Agricultural High School—having the status of a university, not only has students, but carries on a large amount of investigation into agricultural matters, plant pathology, physiology, entomology, tropical agriculture, geology, &c. In plant pathology most work to date has been done on the so-called virus diseases of potatoes, which were dealt with at some length in an earlier section of this report.

The Phytopathological Service is a Department of the Government that deals with the occurrence of disease in the country, with advising farmers as to control, with the issue of certificates as to disease freedom for produce to be exported, and such matters. In 1919, it was split off from the activities of the Agricultural High School. The object was to allow the potato and other plant-disease research problems to be carried out without interruption from routine duties. The Phytopathological Service of Holland is able to teach us a great deal about the methods of inspection of produce intended for export. To absorb her huge flower-bulb production, her potato production, and the like, Holland must satisfy customers that her produce is quite free from pests and diseases. She can succeed in this only through an efficient inspection carried out both in the field, in co-operation with growers' committees equally anxious to conserve the reputation of their bulbs, and at the wharf, when the bulbs are in bags ready for export. The Dutch can also show us how to approach the ordinary farmer about his disease problems, how to make him understand their nature, and hence how he can apply control methods intelligently—the very essence of successful plant disease control.

(*To be continued.*)

TESTING HERDS IS THE ONLY GUIDE TO REPRODUCTION.

No system of dairy herd improvement that does not provide for testing and culling can be expected to produce the best results. It has been abundantly demonstrated that even good judges of cows fail in estimating the respective butter values of the members of a dairy herd. A cow with plenty of wax in her ears, large milk veins, a capacious stomach, and a rich yellow skin may not be paying her way as a member of a dairy herd. The careful weighing and testing of her milk yield, and the setting out of the results in pounds of butter-fat, for one whole period of lactation, will give her value as a member of the herd in an accurate and business-like way.—E. T. BOLLER at the South Coast and Monaro Agricultural Bureau Conference.

STOCK FOODS LEGISLATION.

BRAN AND POLLARD REGULATIONS.

By W. R. Jewell, M.Sc., Research Chemist (broadcast through 3L.O.).

In this article, it is proposed to refer especially to recent legislation dealing with bran and pollard. This subject is of paramount importance to purchasers of these commodities, for although most bran and pollard sold are satisfactory, some certainly is not. This legislation aims to ensure that all bran and pollard submitted for sale shall be of a satisfactory quality. The farmer does not require to be told that he cannot successfully fatten stock, or get a good return from his hens, if the bran and pollard he uses are inferior.

This practical experience of the farmer is borne out by all recognized authorities on fodders and stock feeding, in that decided emphasis is placed on the necessity for using unadulterated bran and pollard, and avoiding that contaminated with mill sweepings and screenings. Modern methods of milling extract more from the wheat than formerly, so that present day pollard, at its best, will not be of such good feeding value as in the days of less efficient machinery. But if legislation can ensure a reasonable quality, free from adulteration, the consumer will be safeguarded, and should not have cause for complaint.

I propose to explain in detail the provisions of the Act (No. 3482) passed in December last, and to show how it may be enforced, and how the consumer may benefit under its administration. This Act, the *Stock Foods Act* 1926, is to be read and construed as one with the 1915 Act, known as the Principal Act, so that the provisions of this latter Act apply to the former. As the standards laid down for bran and pollard contain a few more or less technical terms, it would be as well to explain first what is understood by the names given to the various constituents of a stock food.

The composition of any stock food is expressed conventionally in the terms crude protein, crude fat, crude fibre, and nitrogen free extract or carbohydrate. Crude protein consists of that portion of the food containing nitrogen, and is intimately connected with building up nitrogenous material in the animal body. Fats and carbohydrates cannot replace proteins, so that it is essential that bran and pollard should contain more than a certain minimum amount of this constituent if they are to function as efficient foods.

Crude fat is the fatty part of a stock food, and serves the purpose of forming fatty tissue, and providing animal heat. As crude fat has more than double the value of starch or carbohydrates for this purpose, it is a concentrated food, and a minimum percentage is prescribed in the Act.

Crude fibre consists of the material forming the cell walls of vegetable matter, and is not easily digested, so that it is desirable to keep the amount of this woody material as low as possible. To this end, a maximum allowable percentage has been fixed in the standards for both bran and pollard.

Nitrogen free extract or carbohydrate is readily digested by animals, and transformed into other compounds, which are stored in the animal body. It is also concerned with the production of energy used in performing work and maintaining animal heat. It really consists of that part of the food other than protein, fat, and fibre, and so is governed

by the amounts of these present. Hence nitrogen-free extract is not mentioned in the schedule for bran and pollard. This reads as follows:—

Minimum Standards.

BRAN.—*Physical Standard.*—Bran shall consist of the outer skin or coating of the wheat grain or berry, pure and without admixture of any kind, obtained in the usual commercial milling process from wheat, from which all impurities have been removed.

Chemical Standard.—Bran shall contain not less than 14 per cent. crude protein, not less than 2.5 per cent. crude fat, and not more than 10 per cent. of crude fibre.

POLLARD.—*Physical Standard.*—Pollard shall consist of the products of milling wheat (other than flour and bran), from which all impurities have been removed, and shall be of such fineness as to permit of 99 per cent. passing through a metal sieve having round holes 1.5 millimetres in diameter.

Chemical Standard.—Pollard shall consist of not less than 14 per cent. crude protein, not less than 3 per cent. crude fat, and not more than 7 per cent. crude fibre.

It will be seen that the standards aim at ensuring that bran and pollard shall not be adulterated, and shall have not less than the prescribed minimum feeding values.

Further, a standard of fineness is included for pollard. This is a very important provision. Pollard is essentially a fattening food, and should remain in the animal's system until the last ounce of digestible food material has been extracted. Coarse material irritates the intestinal region, and, acting as a mild purgative, causes the material to pass through the system so quickly that maximum fattening does not result. Any one who has been forced to use pollard containing a large amount of coarse matter can vouch for the ill effects produced both on pigs and fowls. The Department of Agriculture will hold stocks of standard sieves for disposal at cost price.

The Act makes it an offence for any person to sell bran or pollard not in accordance with the respective standards already described, and the standards should ensure that the purchaser does not accept adulterated material.

Analysis of Samples.

The Department, through its inspectors, will take samples and have them analysed to ascertain if material submitted for sale is up to standard. Further, any member of the police force may have access to any building or land where bran or pollard is sold or prepared, and may examine and sample it.

An addition is made to the main Act whereby any purchaser of bran or pollard may have samples analysed by the Department free of charge. A little confusion exists among some people as to what this new clause actually means. It does not mean that the Department will necessarily analyse free of charge any indiscriminate sample forwarded to it. The new clause is an addition to, and should be read in conjunction with, section 13 of the main Act. It really means that any purchaser who has reason to think that his bran or pollard is not up to standard may have same analysed free of charge, provided he complies with the instructions regarding sampling set out in the main Act.

Briefly, these instructions are that the purchaser must inform the vendor of his intention within fourteen days after delivery of the bran or pollard, and offer to take and divide samples in the presence of the vendor within seven days after service of notice. Such notice may be sent by registered letter. If the vendor or his agent does not accept this offer within seven days after service of notice, the purchaser may forthwith, but not later than fourteen days after service of notice, proceed to take a representative sample of about 20 lb. weight, and to divide it into three equal parts, each of which shall be labelled, stating the name of the vendor, time, and place of sampling, and signature of person taking the sample. Each lot shall be sealed or fastened up, and two of them shall be forwarded to the Chemist of the Department of Agriculture, and the third to the vendor.

This may sound a rather elaborate procedure, but as a prosecution may result, a little thought will make it obvious that these precautions are essential if the prosecution is not to fail owing to lack of authenticity of sample.

If the sample is not up to standard, the prosecution may be lodged by the Minister of Agriculture, by a sergeant of police, by a member of the police in charge of a police station, or by the aggrieved person. Thus the purchaser need not conduct the prosecution himself. The Department will take the necessary action.

Various chemical methods are in use for analysing fodders, and different methods may give slightly different results. In prosecution cases it is essential that there should be no dispute on this score, and to obviate this possibility, regulations are being issued prescribing official and standard methods for the analysis of bran and pollard.

Any vendor or agent should make himself familiar with sections 20 and 21 of the main Act, as therein he will find the liability of the said vendor or agent. Briefly, in the case of a successful prosecution, the vendor is not liable if he proves to the satisfaction of the court that he used due diligence, and that the offence was committed by another person. It is suggested that the vendor or agent would be well advised to obtain a guarantee from his principals that each consignment of bran or pollard complies with the prescribed standard.

In conclusion, it may be pointed out that the Act is so framed that it should provide that only bran and pollard of a reasonable quality is obtained by the purchaser. The Department will do its part in seeing that the provisions of the Act are enforced. The purchaser who has reason to believe that his bran or pollard is not up to standard has his redress, as already indicated.

That the full benefit may be obtained from this legislation, it is essential that purchasers should do their part in seeing that the Act is enforced. In all cases where there is reasonable suspicion that the material submitted is of inferior quality, they should take samples in the manner described. The Department will analyse all samples properly taken, and, if below standard, conduct prosecutions. It is in this way that the Act can best be enforced, and the quality of these stock foods maintained on a high level.

The Department will be willing at any time to explain any point in connexion with the Act, and to advise any one who may be in doubt as to his position.

STANDARD HERD TEST.

Report for Quarter ended 31st March, 1927.

In the following is set out the records of all cows which completed a lactation during the quarter. The number is 163, of which 137 qualify for the certificate.

The amount of butter fat required for qualification varies according to the age of the animal (up to 5 years at time of calving), the standards being as follow:—

Junior 2 year old (under 2½ years at time of calving)	200 lb. butter fat.
Senior 2 year old (between 2½ and 3 years at time of calving)	225 lb. butter fat.
Junior 3 year old (between 3 and 3½ years at time of calving)	250 lb. butter fat.
Senior 3 year old (between 3½ and 4 years at time of calving)	275 lb. butter fat.
Junior 4 year old (between 4 and 4½ years at time of calving)	300 lb. butter fat.
Senior 4 year old (between 4½ and 5 years at time of calving)	325 lb. butter fat.
Mature cow 5 years and over	350 lb. butter fat.

Owner	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
H. Allez, Echuca	2	2	Friesian	Rockbank Tulip 3rd ..	Sr. 3 yrs.	C.R.	20.5.26	273	18	9,254	3·73	345·27	275	204
				Gladfield Sunbeam Posch ..	Jr. 2 yrs.	C.R.	19.6.26	273	13	5,487	3·69	202·34	200	
J. Anderson, Lyndhurst	2	2	Jersey ..	Canary 12th of King's Vale ..	Mature	10130	31.3.26	273	19	9,288	5·35	496·63	350	404, 469, 527, 507
				Canary 13th of King's Vale ..	Jr. 4 yrs.	12850	31.5.26	273	9	7,138	5·70	407·11	300	308, 257
Mrs. Archibald and Sons, Elmore	2	2	Jersey ..	Daisy of Mayfield Park ..	Jr. 2 yrs.	17682	25.4.26	273	..	3,853	5·54	213·40	200	
				Lady Monica of Mayfield Park	Jr. 2 yrs.	17681	20.5.26	273	..	4,392	5 59	245·52	200	
W. H. Atherton, Murraydale	2	2	Jersey ..	Marmione of Beverly ..	Jr. 2 yrs.	Vol. 14	15.4.26	273	19	7,501	5·43	407·29	200	
				Quality of Beverly	Sr. 4 yrs.	13321	1.5.26	273	18	6,427	5·88	378·14	325	276, 337

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
W. K. Atkinson, Swan Hill	1	1	Milking Shorthorn	Jessie of Willow Park ..	Sr. 4 yrs.	13856	19.5.26	273	21	8,208	4·20	344·33	325	305, 265
F. Austin, Lara	5	4	Jersey ..	Mercedes Buttercup 2nd of Avalon	Jr. 4 yrs.	12865	7.4.26	273	9	3,795	5·01	190·07	300	252, 312
				Mercedes Pansy 2nd of Avalon	Jr. 2 yrs.	18615	1.6.26	273	16½	5,875	5·51	323·45	200	
				Noble's Queen of Avalon ..	Jr. 2 yrs.	16603	4.6.26	273	8½	3,312	6·28	207·89	200	
				Buttercup 2nd of Avalon ..	Mature	10136	21.6.26	273	25½	8,216	5·04	414·48	350	360, 361
				Mercedes Queen of Avalon ..	Sr. 2 yrs.	16601	24.6.26	273	18	6,477	5·66	366·60	225	325
J. J. Baker, Bannockburn	1	1	Jersey ..	Lass of Rosedale View ..	Jr. 2 yrs.	16609	2.6.26	273	12	4,636	5·32	246·49	200	
Mrs. I. Beard, Outtrim	2	2	Jersey ..	Daisy of Linga Longa ..	Sr. 4 yrs.	12868	7.5.26	273	18	6,712	5·88	394·34	325	232, 258, 328
				Fairy's Handsome Girl of Linga Longa	Jr. 2 yrs.	C.R.	24.5.26	273	12½	4,890	6·86	335·62	200	
A. A. Broad, Sutton Grange	1	1	Jersey ..	Preston Dairy Girl	Mature	12063	11.6.26	273	26	9,707	5·18	502·98	350	266, 304, 448
Burnbank Cheese Company, Dhurringile	2	1	Friesian	Borrinda Beauty	Jr. 3 yrs.	2107	19.4.26	273	11½	8,176	3·72	304·53	250	
				Burnbank Inka Sylvia Ashlyn	Jr. 4 yrs.	1207	18.6.26	273	11	7,684	3·25	250·10	300	
D. Cameron and Sons, Valencia, via Boisdale	1	1	Jersey ..	Birdsfoot of Springhurst ..	Sr. 4 yrs.	12211	19.6.26	273	14	7,229	5·90	426·40	325	396, 410
W. C. Cayley, Werribee	2	2	Ayrshire	Miss Prim of Riversdale ..	Jr. 3 yrs.	13306	18.4.26	273	16	5,917	4·46	263·72	250	227
				Joy Queen of Riversdale ..	Jr. 4 yrs.	13304	29.4.26	273	35	11,319	4·54	514·13	300	414

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
J. E. Chadderton, Hamilton	1	1	Jersey ..	Lassie 3rd of Strathbow ..	Sr. 2 yrs.	15464	8.4.26	273	19	5,577	6·66	371·51	225	
Capt. P. Chirnside, Oakleigh	1	1	Jersey ..	Keepsake of Warenda ..	Mature	8566	10.6.26	240	19½	6,060	6·00	363·46	350	248, 349, 342, 411
W. and J. Cockbill, Rockbank	1	1	Ayrshire	Fulham Beauty	Sr. 3 yrs.	10902	12.4.26	273	16	7,746	4·19	324·82	275	225
H. A. Cooper, Trafalgar	1	1	Jersey ..	Lady Linacre 2nd of Boorene	Mature	11228	20.5.26	273	16½	5,631	6·37	358·61	350	
H. Cowling, Mornington	1	1	Jersey ..	Chevy 13th of Melrose ..	Mature	11775	19.6.26	273	22½	8,553	5·76	493·02	350	285, 396
N. C. De La Rue, Weering	9	8	Jersey ..	Fairy Queen of Colac ..	Mature	9302	30.3.26	273	20½	7,516	5·05	379·75	350	365
				Lily of Colac	Mature	9307	6.4.26	273	10½	5,581	4·85	260·82	350	332
				Beauty of Colac	Jr. 2 yrs.	14979	13.4.26	273	13	5,437	5.36	291·35	200	210
				Larkspur of Colac	Sr. 2 yrs.	Vol. 14	13.4.26	273	20	7,987	5·14	410·60	225	
				Margie of Colac	Sr. 2 yrs.	Vol. 14	5.5.26	273	11	4,488	6·14	275·75	225	261
				Carnation of Colac	Jr. 3 yrs.	Vol. 14	11.5.26	273	16½	6,453	5·38	347·24	250	267
				Ella of Colac	Mature	14981	28.5.26	273	24½	7,934	5·56	441·00	350	
				Silver of Wyndarra ..	Jr. 2 yrs.	18462	5.6.26	273	17½	6,306	4·70	296·44	200	
				Lucerne Vale Trixie ..	Jr. 2 yrs.	18461	15.6.26	273	9½	3,990	5·59	222·96	200	
E. A. Dennis, Swanpool	1	..	Jersey ..	Fuchsia of Springhurst ..	Mature	9654	9.6.26	273	5	6,582	4·68	308·20	350	247, 331, 403, 462, 366
Department of Agriculture, Burnley	2	2	Jersey ..	Flash of Yarra Brae ..	Jr. 3 yrs.	C.R.	27.4.26	273	7	5,317	6·72	357·33	250	
	..			Victoria Seasprite	Jr. 2 yrs.	C.R.	3.5.26	273	18	5,475	6·42	351·23	200	

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
Department of Agriculture Werribee	4	2	Red Poll	Victoria Ghenta	Sr. 4 yrs.	793B	13.4.26	273	17½	8,166	4·02	338·42	325	321,207
				Victoria Zeelana	Sr. 2 yrs.	1250B	26.4.26	273	7	3,724	5·29	196·95	225	
				Victoria Veloutine	Mature	561AA	16.5.26	273	24	9,777	3·44	336·69	350	201, 330
				Laodicea	Mature	306B	24.6.26	273	22	8,136	4·35	353·95	350	212, 243, 323, 289
Dickinson Bros. Sebastopol	4	3	Friesian	Jean 2nd of Ashby ..	Mature	1003	16.4.26	273	20½	10,201	3·46	352·59	350	257, 410
				Ashby Patricia Pauline ..	Sr. 3 yrs.	1168	24.5.26	273	19½	10,683	3·51	374·46	275	344
				Ashby Queenie 3rd ..	Sr. 3 yrs.	1172	24.5.26	273	20½	11,170	3·42	381·71	275	238
				Pauline 3rd of Ashby ..	Mature	1002	7.6.26	273	11	9,702	3·27	317·52	350	260, 255
Dookie Agricultural College, Dookie	1	1	Ayrshire	Scotswood Topsy	Jr. 3 yrs.	14162	22.4.26	273	4	5,974	4·27	254·80	250	208
Dunbar Bros., Carlsruhe	1	..	Friesian	Strathardle Sylvia Lulu ..	Jr. 2 yrs.	2053	23.6.26	273	11	4,968	2·81	139·41	200	
T. R. Findley, Leitchville	2	2	Jersey ..	Twylish Countess of Leven Brae	Sr. 2 yrs.	16641	17.4.26	273	15½	6,796	4·67	317·34	225	215
				Joan Grey of Leven Brae ..	Jr. 2 yrs.	18704	2.5.26	273	12	4,723	4·64	219·13	200	
W. A. Fixter and Sons, Boisdale	1	1	Jersey ..	Queenie of Riversdale ..	Mature	12922	14.5.26	273	16½	6,694	5·48	367·15	350	246, 325
Flack and Gamble, Berwick	2	2	Friesian	Burnbank Mercedes Violet ..	Mature	1093	12.4.26	273	34½	17,713	3·32	598·92	350	288, 330, 600, 605, 599
				Boorinda Ashlynn Countess ..	Sr. 3 yrs.	1491	19.4.26	273	16	10,671	3·77	402·57	275	
Mrs. M. and W. A. Francis, Kilcunda	1	..	Ayrshire	Ena of Hillcrest	Sr. 2 yrs.	12081	26.6.26	273	6½	3,965	4·64	184·07	225	

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
G. Gange, Werribee	3	3	Ayrshire	Audrey of Roseleigh	Jr. 4 yrs.	12105	4.5.26	273	19	10,095	3·95	398·96	300	247, 386
				Airlie of Roseleigh	Jr. 4 yrs.	12103	9.5.26	273	19	9,081	3·83	347·60	300	295, 363
				Pearl of Roseleigh	Jr. 4 yrs.	12108	13.5.26	273	22	9,142	4·27	390·02	300	270, 352
Geelong Harbour Trust, Geelong	1	1	Ayrshire	Rowena of Sparrovale ..	Jr. 2 yrs.	Vol. 19	22.6.26	273	13	4,920	4·58	225·31	200	
Messrs. Gibson Bros., Trafalgar	1	1	Jersey ..	Eminent Minnie Ha Ha 6th of Clarendon Eyre	Jr. 2 yrs.	Vol. 14	24.5.26	273	17	6,724	5·24	352·42	200	
A. W. Gorman, Alexandra	2	2	Ayrshire	Laurel of Cathcart	Sr. 2 yrs.	12143	26.5.26	273	17	8,571	4·05	346·98	225	246
				Heiress of Cathcart ..	Jr. 2 yrs.	13521	24.6.26	273	10½	4,802	4·77	229·28	200	
O. G. Handbury, Toora	4	4	Jersey ..	Lassie of Strathbow ..	Sr. 4 yrs.	12205	18.4.26	273	38½	11,151	5·47	610·35	325	237, 408, 346
				Starleigh of Tooravale ..	Jr. 2 yrs.	19907	12.5.26	273	..	3,237	6·34	205·11	200	
				Princess of Tooravale ..	Jr. 2 yrs.	18730	19.5.26	273	14½	5,946	5·84	347·28	200	
				Milkmaid of Tooravale ..	Jr. 2 yrs.	18729	3.6.26	273	10	3,957	6·67	263·79	200	
Trevor Harvey, Boisdale	4	4	Jersey ..	Empress 2nd of Jerseyholm ..	Sr. 4 yrs.	10254	3.4.26	273	21	7,794	6·52	508·53	325	355, 371
				Lady Marge 5th of Jerseyholm	Jr. 2 yrs.	16652	28.4.26	273	11½	4,669	6·51	304·12	200	
				Bluebell 3rd of Jerseyholm ..	Mature	9391	14.6.26	273	19½	9,071	6·13	555·89	350	373, 395, 414
				Lady Marge 3rd of Jerseyholm	Sr. 3 yrs.	13357	15.6.26	273	18	7,185	6·24	448·52	275	286
R. P. Hastings, New Gisborne	1	1	Jersey ..	Dorothy 3rd of Banyule ..	Jr. 2 yrs.	16689	23.5.26	273	14	4,722	5·50	259·77	200	

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
W. Henderson, Grassmere Home Farm	3	3	Ayrshire	Bellona 4th of Carracoorte ..	Sr. 4 yrs.	13594	22.4.26	273	18	9,055	4·64	419·91	325	260, 331
				Brownie 4th of Carracoorte ..	Mature	9325	23.4.26	273	20½	9,208	4·23	389·80	350	202, 159, 278, 387
				Fenella 7th of Carracoorte ..	Sr. 4 yrs.	9355	26.6.26	273	20	8,015	4·06	325·16	325	232, 229, 188
Share Farm	1	..	Ayrshire	Lucy 5th of Carracoorte ..	Sr. 3 yrs.	13624	15.6.26	273	4	5,192	4·47	232·17	275	211
R. J. Henry, Euroa	3	3	Jersey ..	Heather of Springhurst ..	Mature	12218	10.4.26	273	14	8,067	5·62	453·59	350	242, 358, 318
				Lily of Mayland	Jr. 2 yrs.	16918	23.5.26	273	4	3,991	6·09	242·92	200	
				Ivy of Springhurst	Mature	10250	21.6.26	273	17½	7,794	5·76	448·70	350	294
E. H. Howlett, Morwell	2	2	Jersey ..	Lily of Latrobe	Sr. 2 yrs.	16657	4.5.26	273	16	5,502	5·38	295·88	225	
				Dorothy 2nd of Banyule ..	Mature	11581	13.6.26	273	19	8,657	5·33	461·22	350	
J. A. Huffer, Gormandale	2	2	Jersey ..	Silversand of Glen Valley ..	Jr. 2 yrs.	18756	13.5.26	273	19	6,306	5·71	359·05	200	
				Czarina of Glen Valley ..	Jr. 2 yrs.	18754	21.5.26	273	16	5,944	5·57	331·22	200	
J. Hutchinson & Son, Somerville	1	1	Jersey ..	Beauty 4th of Somerville ..	Mature	6945	1.6.26	273	32½	12,468	5·72	713·38	350	503, 543, 474, 552, 560, 550
J. G. Lobb, Tooradin	1	..	Jersey ..	Vida of Burnside	Mature	9788	19.5.26	273	8½	7,494	4·26	319·33	350	224, 377, 328
Longerenong College, Dooen	3	2	Ayrshire	Banksia of Longerenong ..	Jr. 3 yrs.	12431	22.4.26	273	8	7,074	3·90	275·79	250	283
				Anemone of Longerenong ..	Jr. 3 yrs.	12430	14.5.26	210	4	4,860	4·52	219·46	250	225
				Plume of Longerenong ..	Jr. 2 yrs.	13824	19.5.26	273	18	5,658	4·44	250·96	200	
Mrs. L. Lowing, Tongala	1	1	Jersey ..	Pansy of the Valley ..	Jr. 2 yrs.	18794	22.5.26	273	13	4,362	5·22	227·81	200	

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
H. Luxton, Whittlesea	7	7	Jersey ..	Anne of Aveley	Jr. 3 yrs.	16956	2.4.26	273	17½	8,887	4·25	378·00	250	310
				Valda's Rose	Jr. 3 yrs.	16958	2.4.26	273	..	4,861	5·59	271·92	250	221
				Syringa of Springhurst ..	Mature	9665	15.5.26	273	10	6,579	5·66	372·10	350	221, 281, 270, 327
				Maid of Aveley	Sr. 3 yrs.	13221	21.5.26	273	13½	6,190	4·89	302·98	275	
				Lucy of Aveley	Jr. 2 yrs.	18799	5.6.26	273	8	3,911	5·80	226·78	200	
				Marigold of Aveley ..	Jr. 2 yrs.	18800	6.6.26	273	9	4,640	5·78	268·32	200	
				Hibiscus of Aveley	Sr. 3 yrs.	13218	8.6.26	273	10	6,129	4·94	302·83	275	
G. Lyon, Heidelberg	2	2	Jersey ..	Machree of Banyule ..	Mature	9490	25.4.26	273	17½	7,312	6·07	443·49	350	277, 300, 410, 436
				Ettie 7th of Banyule ..	Sr. 4 yrs.	11582	18.6.26	273	29	8,320	5·12	426·06	325	326
M. Lyons, Bamawm	1	1	Jersey ..	Graceful Duchess 29th of Melrose	Sr. 4 yrs.	15013	18.6.26	273	13	5,766	6·34	365·28	325	264, 312
C. W. W. Macauley, Rochester	2	2	Jersey ..	Christmas Chimes of Taranah	Jr. 2 yrs.	18848	21.5.26	273	17	5,727	5·54	317·05	200	
				Fairy of Taranah	Sr. 2 yrs.	16716	18.6.26	273	14	6,957	6·39	444·60	225	351
J. McDougal, Byaduk	2	2	Jersey ..	Peggy of Parkview ..	Jr. 4 yrs.	15014	31.3.26	273	20	7,581	5·11	387·64	300	387
				Winsome of Parkview ..	Jr. 2 yrs.	18828	31.3.26	273	15½	5,296	5·08	269·04	200	
R. H. Maher, Tongala	2	2	Jersey ..	Lady Fowler 3rd of Rosemont	Jr. 2 yrs.	18855	13.4.26	273	16	5,001	6·34	316·98	200	
				Jessie 21st of Melrose ..	Mature	9885	2.6.26	273	19	7,048	6·16	433·96	350	348, 349
W. Parbury, Warburton	4	2	Jersey ..	Verbena 2nd of Brookfield ..	Mature	9619	2.4.26	273	16	5,662	5·31	300·91	350	
				Betty 4th of Brookfield ..	Jr. 3 yrs.	Vol. 14	28.4.26	273	14	5,353	5·27	281·93	250	
				Dawtie of Brookfield ..	Jr. 3 yrs.	15586	16.5.26	273	13	5,650	5·98	337·72	250	
				Sunshine of Hillcrest ..	Mature	6161	22.5.26	273	14½	5,677	4·39	249·11	350	240
J. Phillips, Murraydale	1		Jersey ..	Empire 10th of Melrose ..	Jr. 4 yrs.	15033	27.4.26	273	12	4,641	6·19	287·22	300	212, 311

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
J. Plattfuss, Tongala	1	1	Friesian	Springfield Ideal Keys ..	Mature	980	1.5.26	273	19	11,266	3·14	354·07	350	211, 257
R. Purnell, Moriac	1	1	Jersey ..	Lady Antimony of Narrawong	Jr. 2 yrs.	Vol. 14	14.6.26	273	10	5,165	6·17	318·70	200	
F. Raggatt, Euroa	1	1	Jersey ..	Princess 5th of Strathbow ..	Jr. 2 yrs.	18924	3.6.26	273	13	5,698	5·32	302·90	200	
Miss H. E. Raleigh, Pakenham Upper	1	1	Jersey ..	Daffodil 2nd of Goronga Park	Sr. 3 yrs.	14235	26.5.26	273	12½	5,124	5·57	285·33	275	284
R. Ralston, Mogionemby, via Euroa	3	2	Ayrshire	Dainty Mary of Ben Kell ..	Jr. 2 yrs.	14082	12.4.26	273	..	3,548	4·88	173·30	200	
				Dairy Lass of Ben Kell ..	Sr. 3 yrs.	11344	20.4.26	273	..	7,267	4·89	355·65	275	296, 274
				Posy of Ben Kell	Sr. 2 yrs.	12729	11.6.26	273	12½	7,677	4·49	344·78	225	213
J. D. Read, Springhurst	9	9	Jersey ..	Tulip 2nd of Springhurst ..	Mature	9667	1.4.26	273	32½	11,580	5·04	583·79	350	316, 278, 517, 438
				Shaster Daisy of Springhurst	Sr. 3 yrs.	14256	9.4.26	273	21	6,855	5·63	386·12	275	287
				Alsyke 2nd of Springhurst ..	Mature	10437	21·4·26	273	28	8,785	6·15	540·66	350	255, 291, 487, 328
				Melilot of Springhurst ..	Mature	9659	3.5.26	273	21	9,310	5·45	507·43	350	281, 350, 367, 507, 454
				Alsyke 3rd of Springhurst	Jr. 2 yrs.	16960	8.5.26	273	17½	4,732	5·37	254·22	200	
				Tecoma of Springhurst ..	Sr. 4 yrs.	12225	9.5.26	273	33½	9,700	4·99	484·47	325	288, 428, 430
				Boree 2nd of Springhurst ..	Jr. 3 yrs.	14238	15.5.26	262	21½	8,093	5·38	435·35	250	348
				Chrysanthemum of Springhurst	Mature	12214	10.6.26	273	16½	8,119	4·64	376·72	350	310, 425, 418
				Sulla 2nd of Springhurst ..	Jr. 3 yrs.	14258	19.6.26	273	21	8,549	5·63	481·67	250	322
W. S. Richardson, Riddell	2	2	Jersey ..	Dahlia 2nd of Springhurst ..	Sr. 3 yrs.	14243	10.4.26	273	13	4,542	6·17	280·31	275	191
				Sutton Lea Midget	Jr. 2 yrs.	19947	12.6.26	273	17½	5,961	5·23	311·99	200	

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
Miss S. L. Robinson, East Kew	7	6	Jersey ..	Kyora Velveteen 3rd ..	Jr. 3 yrs.	C.R.	9.4.26	273	10	5,437	5·84	317·38	250	236
				Bettws-y-Coed of Woodside	Jr. 2 yrs.	19214	19.4.26	273	15½	5,584	5·62	313·58	200	
				Isabella Rose Dream ..	Jr. 4 yrs.	14379	24.4.26	273	17½	6,324	5·83	368·70	300	
				Sybil's Oakleaf of Woodside	Jr. 2 yrs.	Vol. 14	2.6.26	273	9	3,507	5·93	208·14	200	
				Lady Montrose of Woodside	Sr. 2 yrs.	16745	7.6.26	273	14	5,414	5·17	280·14	225	
				Dora 2nd of Woodside ..	Sr. 3 yrs.	13861	13·6·26	273	10½	4,710	6·88	324·19	275	
				Starbright of Ruhbank ..	Mature	12229	18.6.26	273	12½	6,084	5·57	339·15	350	192, 309
G. Rowe, Kardella	2	..	Jersey ..	Pattie of Hillcrest	Mature	9688	12.4.26	273	20	6,651	4·86	323·54	350	207, 204, 274, 314
				Daffodil's Dolly of Welbourne	Mature	13885	28.5.26	273	12	5,070	4·84	245·36	350	180
A. Schier, Kernot	3	..	Ayrshire	Scotswood Mattie	Jr. 2 yrs.	14152	19.4.26	273	12	4,726	3·83	181·13	200	
				Scotswood Daisy	Jr. 2 yrs.	14141	20.4.26	273	11	4,087	3·79	154·84	200	
				Scotswood Ada	Sr. 2 yrs.	15464	1.6.26	273	5	3,332	4·54	151·32	225	
H. Schliphalius, Kilmany South	1	1	Jersey ..	Princess Ida of Cloverfield ..	Jr. 4 yrs.	11709	19.4.26	273	19	6,505	5·46	354·94	300	259, 354
Simpson and Son, Ferntree Gully	1	1	Jersey ..	Peerless of Devon Park ..	Jr. 3 yrs.	12899	29.4.26	273	13½	4,980	6·21	309·26	250	242
O. J. Syme, Macedon	2	2	Friesian	Bolobek Damsel	Mature	1125	16.4.26	273	28½	12,865	3·67	472·49	350	399, 291
				Bolobek Milkmaid	Sr. 3 yrs.	1194	3.5.26	273	34	15,295	3·39	519·59	275	210
L. W. Thompson, Pakenham	3	2	Jersey ..	Pearl of Mendip	Jr. 2 yrs.	18992	10.4.26	273	18½	5,529	4·99	276·16	200	
				Vanilla of Mendip	Jr. 2 yrs.	18993	15.6.26	273	12½	4,304	6·14	264·48	200	
				Gaiety Girl 12th of Melrose ..	Mature	12247	22.6.26	273	10½	4,728	5·83	275·65	350	246, 222

STANDARD HERD TEST—*continued.*

Owner.	No. completed Test.	No. Certificated.	Breed.	Name of Cow.	Age Standard.	Herd Book No.	Date of Calving.	Days in Test.	Milk last Day of Test.	Milk.	Average Test.	Butter Fat.	Standard required.	Previous Yields of Butter Fat in lbs.
									lb.	lb.		lb.	lb.	
C. Wade, Camperdown	5	5	Jersey ..	Miss Merline of Merivale ..	Sr. 2 yrs.	16760	6.4.26	273	17	4,968	6·02	299·14	225	
				Grant's Duchess of Merivale	Jr. 3 yrs.	16757	17.4.26	273	20	7,338	5·22	383·00	250	320
				Fairy Queen of Rockbank ..	Jr. 3 yrs.	16759	1.5.26	273	14½	5,545	5·70	315·02	250	242
				Buttercup of Rockbank ..	Jr. 4 yrs.	15643	7.6.26	273	15	6,848	5·70	390·20	300	372
				Fairy Girl of Rockbank ..	Jr. 3 yrs.	16758	27.6.26	273	10	4,785	5·46	261·27	250	325
A. Wallace, Bendigo	1	..	Ayrshire	Lady Olga of Ben Kell ..	Mature	4579	2.5.26	273	16	7,430	4·38	325·30	350	315
H. L. Webb, Sunbury	2	2	Ayrshire	Lily of Holly Green ..	Mature	4772	15.4.26	273	21	13,012	4·54	591·10	350	248, 391, 441, 520, 477
				Model of Holly Green ..	Mature	6953	28.4.26	273	15	9,534	4·00	381·79	350	307, 333, 375, 360
S. K. Webb, Neerim North	1	1	Jersey ..	Pearl 13th of Melrose ..	Jr. 4 yrs.	15050	22.5.26	273	17	6,913	5·74	396·70	300	320
A. C. Willis, Paschendale	1	..	Jersey ..	Sweet Lass of Clover Flat ..	Jr. 4 yrs.	13411	24.4.26	273	12	4,371	5·18	236·31	300	
J. Willis, Bacchus Marsh	1	..	Friesian	Lerderberg Rosemary ..	Sr. 3 yrs.	1322	9.5.26	273	29	7,383	3·42	252·24	275	302
W. Woodmason, Oakleigh	8	8	Jersey ..	Lassie Fowler 13th of Melrose	Sr. 2 yrs.	16787	10.4.26	273	16	6,394	5·74	366·85	225	218
				Handsome Girl 13th of Melrose	Jr. 2 yrs.	19034	1.5.26	273	10½	3,778	6.66	251·77	200	
				Laura 15th of Melrose ..	Jr. 3 yrs.	16788	1.5.26	273	12	5,949	6·73	400·00	250	
				Chevy 16th of Melrose	Jr. 2 yrs.	Vol. 14	20.5.26	273	10¾	3,753	5·58	209·29	200	
				Jessie 37th of Melrose ..	Jr. 4 yrs.	14300	4.6.26	273	13	6,189	6·45	399·46	300	290, 427
				Empire 9th of Melrose ..	Mature	C.R.	6.6.26	273	18	7,002	5·85	409·78	350	343, 446
				Rarity 14th of Melrose ..	Sr. 4 yrs.	Vol. 14	10.6.26	273	20½	8,155	5·50	448·34	325	
				Jenny Lind 18th of Melrose ..	Sr. 3 yrs.	15054	13.6.26	273	18	7,438	5·59	415·91	275	283

A GARDEN FUNGUS DISEASE.

A Wilt of Tomatoes, Iceland Poppies, and other Garden Plants in Victoria caused by the Fungus Phytophthora cryptogea (Pethy and Lafferty).

By C. C. Brittlebank, Biologist, and S. Fish, B.Ag.Sc., Assistant Plant Pathologist.

This fungus disease was first observed in Australia in 1909 on cinerarias grown in a glass house near Melbourne. Since then it has spread rapidly, until now, not only is it a serious disease of tomato seedlings, but also one of the principal fungus diseases of our flower gardens. The plants found to be diseased by this fungus are as follows:—Tomato plants, iceland poppies, cinerarias, primulas, lupins, wallflowers, asters, and antirrhinums. Tomato plants up to 5 inches in height are affected while in the seed beds. After that period they appear to be immune from attack. The young plants attacked turn brownish at the base of the stem, and fall over in a manner typical of common "damping off" trouble.

Iceland poppies are generally affected when the buds are about 2 inches from the ground; such plants do not usually reach the flowering stage. The foliage turns yellow, and there is a dark colouration at the base of the stem. Cinerarias, lupins, wallflowers, asters, and antirrhinums wilt at flowering time; later their leaves turn yellow, and at the base of their stems the characteristic blackening is developed.

The full details of the life history, cultural features, and inoculation experiments will be published later.

The principal source from which infection is spread is the discoloured portions of the stems of diseased plants. This is demonstrated by the fact that when these discoloured parts are placed in water at 62 deg. F. the seeds of the fungus (zoospores) are produced in 25 hours 21 minutes. Under similar conditions it takes one hour for these to germinate, and thus be capable of infecting healthy plants.

The length of time plants will live after infection varies according to the particular conditions. Tomato plants have died within five days from inoculation by this fungus. Cinerarias have been killed within eight days. When lime is applied to the host plants growing on the infected soil, the plants die with greater rapidity than do those on the plot where no lime is used.

Exactly how this fungus is carried over from one season to the next has not been clearly demonstrated. It has been known to exist in the soil for several years, and still be capable of infecting any of the above-mentioned host plants. When the fungus is grown on culture media, a resistant form of seed (zoospores) is produced, but such a resistant stage, capable of carrying the disease on from one year to the next, has not been found in the many decayed diseased plants examined.

Methods of Control.

1. Plants that are already affected cannot be cured. They should be taken out and burnt.

2. Sterilization of infected soil by steaming has met with complete success where tried in Victoria and other countries.

3. At Cheshunt Experiment Station it was found that a solution of a mixture of copper sulphate and ammonium carbonate (Cheshunt compound) checked the disease.

Experiments conducted here have confirmed the efficacy of the Cheshunt compound for Victorian conditions. It consists of two parts by weight—copper sulphate (bluestone) and eleven parts by weight of ammonium carbonate. Bewley in his "Diseases of Glass House Plants (page 61) suggests the following method of preparation:—"The ammonium carbonate which must be fresh is reduced to a fine powder by crushing out the lumps. It is then thoroughly mixed with powdered copper sulphate in correct proportions and stored for 24 hours in a tightly corked glass or stone jar before using. The solution is prepared by dissolving 1 oz. of the dried mixture in a little hot water and adding to 2 gallons of water. It should not be put in vessels of iron, tin or zinc, as it corrodes them, and loses its strength, and just as much as is required for immediate use should be prepared."

The soil in seedling boxes should be watered with this solution during the growing period and before the plants are lifted for transplanting. The soil into which the seedlings are to be transferred should also receive the solution. When diseased individuals have been removed the soil around the spot in which any replacement is to be made should be watered with half a pint of the solution.

One set of experiments with the Cheshunt solution in Victoria demonstrated that host plants (asters) grown on infected ground not watered with the solution showed a total mortality. A plot in the same bed was watered with Cheshunt solution just after planting and once during the growing period, and all the plants therein remained healthy.

Many other demonstrations have been seen here of the efficacy of this treatment, which some commercial growers are now using with success.

THE PREPONDERANCE OF BULL CALVES AND FAILURE OF COWS TO BREED.

Feeding as a Possible Remedy.

A correspondent of *The Farmer and Stockbreeder* says—

"Many breeders complain that they have three times as many bull calves as heifers, and wonder what the cause may be.

With good beef cattle the subject is not of much consequence, but in a dairy herd it is often an inconvenience as well as a great loss, as the owner does not obtain sufficient heifers to replace cows falling out for various reasons; or perhaps he is not securing heifer calves from his best cows, and consequently has to buy in from other sources.

So far as my own neighbourhood goes, there appears to be one important reason why farmers get 90 per cent. of bull calves. The stock bulls used are fed upon nothing but hay, and hence do not appear to have sufficient vitality.

It may be equally bad where a bull is overfed, even if the service may not be altogether abortive; but I have in mind another case in the same district where a stock bull is fed with a reasonable allowance of cake and green fodder, as well as hay, or cake and roots when these are in season, thus making a good variety, and a desirable change from hay, which is not always of the best quality—the result is 90 per cent. of heifer calves.

Cows in the neighbourhood have been served by other bulls, and the result has been a preponderance of bull calves. In each case these bulls are being fed upon nothing but hay.

I have seen it mentioned that a breeder had only one heifer calf in the season, and that he sent it to a sale as a curiosity.

A young bull is generally credited with throwing mostly bull calves, which fact is only a confirmation of the theory of low vitality.

In buying cows at sales there is another fact that should be taken into consideration if one wishes to breed mostly cow calves. Where a heifer commences with a cow calf she will very likely produce a succession of calves of that sex, or vice versa, though there must, of course, be exceptions from various causes, particularly as regards the feeding of the stock bull.

The whole subject is worth looking into. If a cow requires good feeding to keep her at her best, certainly the stock bull should have moderately good feed if he is to be a reliable stock-getter."

American Views.

Discussing the same subject, a writer in *Hoard's Dairyman* says—

"Failure of cows to breed is often caused by using prominent but too old bulls which have been holding over, sometimes up to the age of twelve, thirteen years, for the sake of their merit, after strenuous activity in younger years. Again, failure of cows to breed is often due to a too narrow ration and a too heavy feeding of the feed mixture. We frequently hear of cases of garget, mammitis, indigestion, all of which are more or less due to too 'high' feeding.

Nearly everybody engaged in dairying knows that heavy feeding of protein-rich feed stimulates certain nerve centres, and by this the milk-productive system. This can be overdone eventually to such a degree that the udder will suffer from over-exercise (slight inflammation), which is rarely observed by the bare eye. As the udder and the sexual parts of the cow are in sympathy, it is easily understood that those sexual organs are not acting regularly, and, therefore, the lack of taking to the bull, or barrenness.

Some time ago, farmers in my neighbourhood were buying a high-class ready-mixed feed from a co-operative association. The mixture contained 26 per cent. protein. These dairymen did not take the precaution to widen this very narrow ration by adding corn meal or ground oats, but they fed it straight to their cows, and were well satisfied with the amount of milk in the pail. But the result was that most of the cows did not breed in time. Finally they called upon a noted veterinarian of this vicinity for consultation. His advice was: 'Reduce your high feeding to about 18 per cent. protein in the grain mixture and await results; if favorable results will not be obtained in reasonable time, I will apply local treatment.'

They followed the advice, and the trouble disappeared successfully. The local treatment recommended by the veterinarian is known as the 'William or Albrechtson' treatment for non-breeders; that is, rectal examination of the uterus and the ovaries and the douching with uterine stimulants. This treatment has proved satisfactory in many cases."

ORCHARD AND GARDEN NOTES.

E. E. Pescott, F.L.S., Pomologist.

The Orchard.

PLANTING.

The time has now arrived for the general planting of deciduous fruit trees. The soil should have previously been well ploughed and subsoiled, and, as far as possible, drained. To insure satisfactory results, it is essential that the orchard be subsoiled. Where expense is a consideration, drainage may be left for subsequent years, but once the orchard has been planted, it will be impossible to subsoil.

When planting out, the distance between the trees will be determined by the kinds to be planted. For ordinary deciduous fruiting trees it is the custom in this State to plant them 20 feet apart in the rows, the rows also being 20 feet apart. Results have proved this to be a satisfactory practice. Almond trees may be planted 15 or 16 feet apart each way, while walnuts and citrus, owing to their spreading habit, often require a distance of 30 feet.

Deep planting is not advocated, the general practice being that the depth of planting in the nursery should be followed. If holes be dug, they should be shallow, the bottom being merely loosened to allow a comfortable friable bed for the tree roots. A good practice is to dig the whole strip along which the trees are to be planted, merely removing sufficient soil afterwards when planting. Another satisfactory custom is to plough furrows 20 feet apart, and to plant the trees in the furrows, filling in the soil over the roots and trampling well down.

Before planting, the roots of the young trees should be well trimmed, shaped to an even form, and cleanly cut. As the result of their removal from the nursery beds, the roots are generally more or less damaged, and numbers of the fibrous roots, becoming dry, shrivel and die. These all require a clean trimming. Then it is often desirable to remove some of the roots so as to balance the root system. The trimming of the roots gives the young tree a clean root system, and it is enabled to establish itself with young, vigorous roots.

After planting, the top should be well cut back, so as to leave three or four arms, with three or four buds on each. Where it is not possible to have this number of arms or limbs it is frequently advisable to cut back to one stem, allowing the buds to break out strongly and frame the tree after planting. In some countries, the custom of not cutting back the trees the first year is favoured. Local experience has not resulted in favour of this practice, as it is found to be inadvisable to unduly strain the young tree by leaving a heavy top to be supported by the weak-growing root system.

A number of good commercial fruits have been found to be either wholly or partially self-sterile, requiring other varieties near them to enable them to set their fruit. For this purpose it is necessary that the bloom periods should be somewhat coincident.

SPRAYING.

The time has now arrived when it is necessary to spray for the following pests—scale insects, woolly aphis, and the bryobia mite. The use of red oil has been advocated for these pests, and, as well, crude petroleum, kerosene and other oil emulsions have proved satisfactory.

The lime-sulphur spray is also one of the most effective of sprays for winter use. It is lasting, searching, and being a fungicide as well as an insecticide, is much favoured by growers as a dual spray.

Nicotine sulphate in any form, such as Nicotox or Black Leaf 40 may also be used.

The recent experiments of the Government Entomologist have disclosed a most effective spray. It is made up as follows:—One pound of soap dissolved in 1 gallon of boiling water; to this is added 1 gallon of red oil, which should have been thoroughly emulsified; then 1 pint of nicotine sulphate is stirred in and 80 gallons of water added. In this way mixture sufficient to spray 100 trees can be made. If hard water be used 1 oz. of washing soda should be added. Winter is advised as the best time for spraying.

GENERAL WORK.

All ploughing should now be completed; if not, it should be finished before spraying and pruning operations are proceeded with.

Any autumn manuring or liming should also be now carried out. This, too, should be finished before spraying or pruning. Before spraying with oils or with lime sulphur wash, all rough bark on apple and pear trees should be scraped off. This will mean the certain destruction of any codlin moth larvæ hiding underneath.

REMINDERS FOR JULY.

CULTIVATION.

FARM.—Finish sowing barley, peas, and beans, and late white oats in backward districts. Trim hedges. Fallow for potatoes, maize, and other summer crops; in early districts, plant potatoes. Graze off early crops where possible.

VINEYARD.—Proceed with pruning, burning off, and ploughing. Deep winter ploughing is essential. Do not delay it until spring. Dormant roots may be cut with impunity, but cutting the active root is injurious. Though anthracnose (vine black spot) was not much in evidence last season, "swabbing" of susceptible varieties (sultana, &c.) with acid iron sulphate solution, just before bud-burst, is recommended. Bulletin describing treatment will be posted on application. Complete, as early as possible, the application of manures if not already done. Mark out land for new plantations. If ground is in good order and not too wet, proceed with plantation of young vines (unpruned). Remove cuttings or scions from vines previously marked, and keep fresh by burying horizontally in almost dry sand in cool, sheltered place. Permanently stake or trellis last year's plantations.

Cellars.—Rack all young wines, whether previously racked or not. Rack older wines also. For this work choose, as much as possible, fine weather and high barometer. Fill up regularly all unfortified wines. This is a good time for bottling wine.

NATIONAL

SWAMP GRASSES

Dairy Cattle Feeding on Poa Aquatica.

POA AQUATICA

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The King of all Swamp Grasses

Will convert useless swamps into valuable pasturage (worth £50 an acre). Acknowledged throughout Australia to be the finest reclaimer of Swamps, Morasses, Lagoons, Billabongs, and low banks of rivers and creeks. Poa Aquatica produces an enormous bulk of succulent feed, resembling Japanese Millet, of which all kinds of stock are exceedingly fond. Poa Aquatica is sold by roots only. Plant three bags per acre. Roots of strong, good quality,

30/- sack; ½ sack **16/-**

Write for special circular

POA FLUITANS

(MANNA GRASS)

A Valuable Grass for Open Swamps

Poa Fluitans belongs to the same genus as Poa Aquatica, but is a finer and shorter grass. It grows and flourishes in open swamps, and is especially valuable when grown in conjunction with Lotus Major. It is an extremely valuable feed, and is one of the richest grasses for feeding value known. Sold in roots only (with a percentage of Lotus Major roots). Plant three bags per acre. After planting, it spreads rapidly.

Roots, **35/-** sack; ½ sack **20/-**

PASPALUM DISTICHUM

The ideal grass for low-lying or swampy land flooded in Winter but dry in Summer

For open swamps that dry up in summer time, Paspalum Distichum is a most valuable fodder. It can also be grown in places other than swamps, especially on sandy soil, river flat lands, and around salty marshes

Roots only, **30/-** sack; ½ sack, **16/-**

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EVANDALE,
23rd April, 1927

For a considerable time I have been a consistent user of power kerosene and am pleased to advise having recently made a careful test (under average conditions) of your "Cross" power kerosene. I can state that under my own personal supervision better results were obtained from this product than from any brand used previously.

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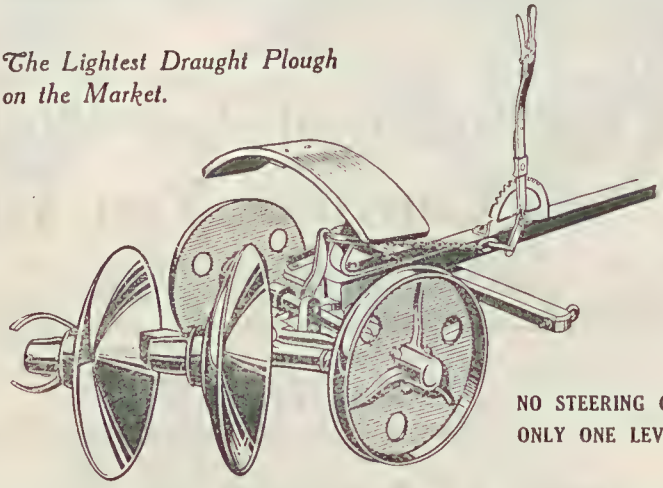

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It will plough Banks and Rough Country without bridging any ground.

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It is FITTED WITH SHOES which are PERMANENT DEPTH GAUGES, and which are invaluable in SOFT or MARSHY country.

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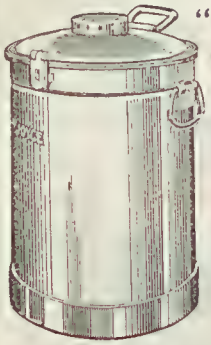

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One man can fill and sew 200 bags per day, averaging 3 bushels 20 lb. per bag.
With this Filler it is quite easy to put 10 ordinary bags into 9 bags.
Strongly made of galvanized iron, weighs only 5½ lb., and 47 inches over all—anything shorter cannot reach and fill the bottom corners of the bag.
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10 x 12 gauge
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Shear by machinery—reduce your shearing costs and bring your wool clip up to the standards of the big stations. When you choose a shearing plant choose the MUNRO Portable Two Stand TRIUMPH Shearing Machine for the quality of its construction and for the service it gives.

The Munro Machine, which can be supplied with either 2½ or 3½ H.P. TRIUMPH Engines (with throttle governors, which ensure even running at all loads), is recognized as a thoroughly good shearing plant—one that will give years of satisfactory service.

The Shearing Machine itself is constructed with a friction drive and a single "in and out" gear control, the same as used in large sheds. The plant is built on a heavy angle steel frame to prevent vibration.

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Australian made—100% efficient.

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The Stores have a capacity of **743,980 cubic feet insulated,** and are capable of holding **372,000 boxes of butter,** or **248,000 cases of fruit, or 335,000 carcasses of lamb and mutton.**

Electric motor power totals 900 H.P.

Produce can be placed on conveyors at any point and mechanically carried to any chamber in the building, or conveyed from the chambers direct into the ship's hold.

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The Department of Agriculture will receive, handle, freeze, store, and ship **Butter, Cheese, Eggs, Fruit, Meat, Poultry, Rabbits and Hares, &c.,** for producers and exporters.

Produce to the value of over **£30,000,000** has been treated at the **Government Cool Stores.**

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DEPARTMENT OF AGRICULTURE, VICTORIA

Red Poll Dairy Herd

The Department has now completed the orders for calves that were booked ahead of calving when the advertisement was withdrawn; consequently the booking of orders for bull calves from the forthcoming calvings has now been resumed.

BULL CALVES are sold for delivery at a month old at prices based approximately on the actual milk and butter fat record of the dam at the rate of 1s. per lb. of butter ***fat*** yielded. Thus a calf from a cow with a 400 lb. butter fat record is sold for 20 guineas, one from a 300 lb. butter fat cow for 15 guineas, and so on. Bull Calves *ex* heifers on their first calf are sold for a set price of 10 guineas.

(For Record of Yields of dams see Red Poll Herd Book.)

SIRES IN USE:

VICTORIA VOLCANO (322 A.)

Sire: Nicotine (69 A.A.) by Acton Dewstone (imp.) 9524 (4 A.A.).
Dam: Tonga (253 A.) by Honingham Archbishop (imp.) 9702 (48 A.A.).

Tonga's butter fat yields for 6 successive lactation periods are as follow:—1916, 341 lb.; 1917, 398 lb.; 1918, 419 lb.; 1919, 479 lb.; 1920, 428 lb.; 1921, 562 lb.

BELLIGERENT (Imported) 11096 (8 A.A.)

Dam's Record (1st milking) 7144 lb. milk.

Dam's Dam's	,,	14533 lb. milk	...	4	years	average	12871 lb.	milk.
Sire's Dam's	,,	10370	,,	7	,,	,,	9354	,,
Sire's D. Dam's	,,	9510	,,	12	,,	,,	8033	,,
G. Sire's D. Dam's	,,	10215	,,	7	,,	,,	9386	,,
G.G. Sire's D. Dam's	,,	12565	,,	10	,,	,,	8853	,,
G.G.G. Sire's D. Dam's	,,	10088	,,	2	,,	,,	9754	,,

BIT O' 'BACCA (Vol. 3)

Sire: Nicotine (69 A.A.) by Acton Dewstone (imp.) 9524 (4 A.A.).
Dam: Nictitana (311 B.) by Nicotine (69 A.A.).

Nictitana's butter fat records for 6 successive lactation periods are as follow:—1918, 450 lb.; 1919, 396 lb.; 1920, 393 lb.; 1921, 465 lb.; 1922, 524 lb.; 1923, 536 lb.

Inspection of the Herd is Invited.

Visitors will be met at the Station on notifying the Manager, State Research Farm, Werribee.

Application for purchase to

Dr. S. S. CAMERON, DIRECTOR OF AGRICULTURE, MELBOURNE.

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in good crops of high quality produce

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Settings of Eggs can be supplied in season
1st July to 1st October orders are booked in rotation

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No. 1—Pure Cosh World's Record Strain.

„ 2—From Single Tested Hens with scores of 260 to 285 eggs, Single Mated to Cocks bred from Hens with scores of 275 to 301 eggs.

UTILITY BLACK ORPINGTONS

(Founded on Christie and Cullen Strains)

No. 1—From Single Tested Hens with scores of 256 to 284 mated to Cockerels bred from Hens with scores of 272 to 313 eggs.

„ 2—From Hens bred from above mated to Cockerels bred from Single Matings.

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From Hens with scores of 250 to 275 eggs, mated to Cockerels bred from Hens with scores of 264 to 292 eggs in 12 months.

For prices and particulars apply to The Manager, Research Farm, Werribee

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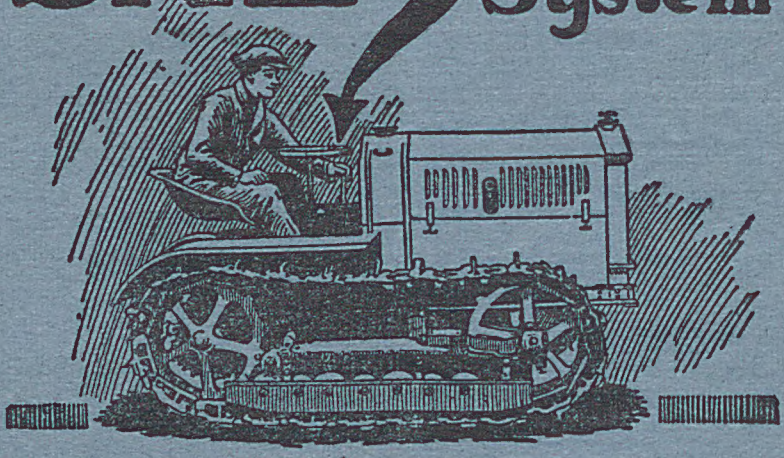
Famous "SNAP" Oiling System



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Use 20-30 Cletrac

SNAP Lubrication is exactly what the name implies—a real Snap! One push of the Plunger (shown above) and—Presto! all of the lower track wheel bearings are instantly and thoroughly oiled.

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We recently did some rather interesting work ploughing a paddock in which the bracken was 3 to 4 feet high. We ploughed it all under in the first operation, and then finished the job with a 16-disc cultivator with a roller hitched on behind.

Sawing hard messmate with a 42-inch circular saw is another job, and the machine has never yet been pulled up.

I can thoroughly recommend the Cletrac, and I have had innumerable applications from my neighbours to do contract ploughing, but am too busy with my own work to consider same.

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